SEPTEMBER 1947

Kiplinger Magazine

THE CHANGING TIMES

THE ATOM IN OUR TIME

Changes are on the way. Some are not far off for industry... farm... health... and consumers

REPORT ON TELEVISION

THAT OIL SHORTAGE

MR. SMITH vs. THE STEEL MAKERS

CONTENTS

Notes on This & That 1
The Parking Problem: What's True and False 4
THE ATOM IN OUR TIME—A Group of Articles
What Changes to Expect: in Industry, in Chemistry, on the Farm, in Health, and for Consumers 5-14
Reformer in Chicago: A Businessman as Mayor 15
That Oil Shortage—How About It? 18
The Job of Making Salesmen 21
These Changing Times: Report by the Editors 24
This Exciting World of Women 26
Your Credit Good?—Dun & Bradstreet Knows 27
Fuller Brush Knocks at the Door of Industry 30
Mr. Smith vs. the Steel Makers 33
The New Labor Law: Questions and Answers 36
Industry Goes to the Fair 38
Rubber: Prospects and Prices 40
Report on Television 43
'Bill' Harman Delivers His Factory House 45
Letters from Readers 47
Incentive Makes the Mare Go . . . . . *Inside Back Cover*

KIPLINGER MAGAZINE

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SEPTEMBER 1947

NOTES *on This & That*

SOME BUSINESSES plan a long way ahead. Chalfonte-Haddon Hall, an Atlantic City hotel, makes a specialty of encouraging patronage of parents accompanied by small children. A friend of ours, vacationing there this summer with his three-year-old daughter, spoke to the manager about what a hit the policy made with the parents. The manager said he was glad of that but he explained that what the hotel is really aiming at is the patronage of the daughter and her children 30 years hence.

A YOUNG MAN acquaintance of ours after getting out of the army went into the contracting business in a small way and built a half-dozen houses on a shoestring. We were talking to him one day recently about his family of one wife and two small children, and we asked him whether he had a good house, with some outdoors for the children. He replied: "Oh, we are still living with my mother-in-law. We can't afford to pay what these new houses cost."

A SENATOR reports that 70 percent of the automobile trailers now being sold are bought by war veterans who couldn't find houses at the price they could pay, but who intended to use the trailers as homes for their families. Some of the veterans have been bold enough to say that they were going to park their trailers along some nice, quiet, paved road—paved with good intentions. But some of the men, on a hunt for the silver lining, have said that it is almost too late to elect Presidents who were born in log cabins, but that perhaps in future years it will be quite as satisfactory to have been born in a trailer.

ONCE we had the Stone Age, and now we have the Steel Age. If you need proof, take a look around you from the chair in which you are sitting. Everything you see either is made out of steel or is made with the aid of steel. The house, the office, the factory, the machine, the clothes, the lunch and dinner, the radio, the movie, the faucet water, the light at night, the sidewalk and paved street, the book, the newspaper—all are given you by the grace of steel.

Jobs depend upon steel. Also sometimes the lack of jobs can be charged, directly or indirectly, to the lack of steel. So steel is of great public interest—both the price and the supply.

As for the price of steel, the notable fact about it is that it is relatively rigid. Steel does not fluctuate in price as much as most other things. The price is fixed by the makers, rather than by interplay of competitive forces among the makers and the users. The makers raise their price in good times, and have just done it. Per-

haps this is defensible, for they can certainly make a case of higher costs of manufacture. Nevertheless, the question is bound to arise as to whether steel makers should not reduce their price in bad times, as one way of combating the bad times. But they don't. Instead, they suspend operations; they shut down. This throws men out of work, and it tends to cut down the number of jobs that would be available among the users of steel if there were a continued supply of steel at a bargain price.

In addition, there is the problem of steel capacity. All the steel plants, running full blast, can make only a certain amount of steel. Right now this is not enough to fill all needs. The economy is suffering from insufficient steel. There is a limitation on the economy, on the growth, on the supply of all sorts of things. The steel industry admits this, but says conditions are abnormal following the war, while everyone wants things that were not supplied during the war, and that later the demand will fall off, and then existing facilities will be enough. The steel industry is committed, therefore, to the theory that the economy has its big ups and its big downs, and the industry is playing safe for itself, gearing its operations to the downs instead of the ups.

This thing is complex and no one has an easy answer. The only point that is perfectly clear is that not-enough-steel and rigid-price-of-steel are problems that belong in the realm of public interest, and that the general public, sooner or later, is going to insist that something be done about them.

If there weren't enough drinking water, do you suppose the public would stand for arguments from water companies that they couldn't make a profit out of expanded water facilities?

THE STATE DEPARTMENT has many perplexities, and one of the newest is the problem that arose when it moved its offices to the building formerly occupied by the War Department. It is an excellent building, and the only trouble is that the walls are covered with huge mural paintings of divebombers, big guns, tanks and other implements of slaughter that went so well with the trade of the War Department. The State Department often is called "The Department of Peace," and the high officials are trying to figure out what impression the warlike murals might make on visiting diplomats of the peace-loving nations. To make matters worse, the route followed by the old bulky bus that shuttles between the old and the new State Department buildings is referred to as "State to War."

NEW MEMBERS of the National Labor Relations Board and its chief enforcement official, the General Counsel, were allowed to take their jobs, but formal confirmation of their nominations by the Senate was withheld until the next session. The implication is that if they perform satisfactorily to the Senate, they will be confirmed next year. We have seen a lot of questionable governmental practices in our time, but this is about the worst. The whole affair is like giving a judge a job on the municipal bench, and telling him that if he decides cases to suit the majority clique of the city council, he can keep the job.

GOVERNOR TOM DEWEY is five feet, eight inches tall, and is a bit sensitive about his lack of more height. Recently we got to wondering whether this might affect his chances next year, and so we had a little research done for us. In due course we received a report to the effect that James Madison was a little man whom Washington Irving called a "withered little applejohn," and Aaron Burr was five feet six, but ran a presidential dead heat with long-legged Thomas Jefferson. Martin Van Buren was also five feet six, and he

succeeded the tall and soldierly Andrew Jackson. Alexander Hamilton was an inch shorter than Dewey, and Carter Glass was four inches shorter. There is no evidence in history that Americans measure a man's worth by the distance between his head and his heels.

WHILE PURSUING our search into significant phases of history we also ran smack up against the question of whether good looks help a candidate for public office. Harding, the handsomest President of recent years, is remembered chiefly for his shortcomings. William H. Taft looked like a biped walrus. Coolidge had the face of a perpetual pickle taster. Lincoln was undoubtedly the ugliest, and Washington was the unsmilingest, and yet they are the only two Presidents whose birthdays are national holidays.

THE AMERICAN taxpayer financed 48 percent of the food exported for the fiscal year ending last June 30. We exported 563 million bushels of food grains, and almost half of the approximately 1 billion, 300 million dollar cost was chalked up to taxes or added to the national debt.

Farmers will understand the logic of the transaction even if other people don't. Europe and its population is a field which has been overfarmed, undercultivated, trampled by trespassers, allowed to erode and to grow up in weeds. There's only one way to get such a field back in production—fertilize it. Fertilizer costs money but with good management and some weather luck it pays off.

Of course the analogy doesn't make sense unless you happen to believe that people (and soils) need food to restore their use to a world in which we all have a big stake.

THE FIRESIDE CHAT is something we'd like to see restored. There are things Mr. Truman ought to discuss with the people. He ought to be talking straight from the shoulder on foreign affairs, step by step, and such important domestic matters as the progress (if any) toward a balanced prosperous economy.

The President's communications methods have become a bit indirect. The Administration's self-aid plan for Europe was announced by General Marshall and named for him. The several White House pleas for voluntary price stabilization were issued to regular press conferences and reached the people under the particular light that each newspaper placed on them.

The country has a warm feeling for Harry Truman. People think of him as an average sort of fellow and find it easy to project themselves into his spot. This makes for a basis of understanding between the People and the President, and it calls for more response on his part.

Mr. Truman may not want to ape his predecessor's technique, and this is perfectly understandable, but it seems sure that if his advisers put their minds to it, they could come up with something properly homespun for the personality of the man from Missouri.

LABOR LEADERS who demand wages for a few that will result in the raising of prices for all were under discussion recently by two bus riders. Said one to the other: "Sometimes these labor leaders remind me of the old mule who used to walk through the side of the barn instead of using the door. He wasn't blind; he just didn't give a damn."

NEW LAWS create such a hullabaloo that it was refreshing the other day to come across a calmer view on the subject of laws. It was a book by Nelson B. Gaskill, a former chairman of the Federal Trade Commission, and he said: "A law is merely a statement of hopeful anticipation."

THE PARKING PROBLEM

What's True and False?

NO large U. S. city has yet really solved its downtown parking problem. Nor will any city find a solution unless it abandons the idea that the answer to parking lies simply in providing more parking space.

This may be heresy to cities which have been busy dreaming up huge underground garages, roof-top parking lots, and other such devices to combat automobile congestion. But the case against a lot of popular ideas about parking is made by one of the country's top-flight experts on the subject, Walter H. Blucher, executive director of the American Society of Planning Officials.

Blucher's logic is simple. By increasing parking space you invite more motorists, who create need for still more parking space, which invites more motorists, and so on round and round. The answer is obvious: cut down on downtown motorists.

This solution doesn't even sound simple. Yet there are sound ways of executing it, Blucher says. He would do it by various devices of city-planning. Here are a few of his thought-provokers:

► Why treat parking as an isolated problem? Why not as part of a "general community plan?" For example, a city spends millions on a parking program. It then goes and spends millions more widening streets and building free-ways into the business district. The second program defeats the first. Easier access to downtown invites more automobiles, thus inevitably generating even worse parking snarls.

► Also in line with the "community planning" idea, rehabilitate the blighted areas which dot so many of our downtown districts. When these places become unfit to live in, people move out to the suburbs. Suburban invasions of downtown by automobile is one of parking's worse irritants. If blighted areas were made pleasant to live in, many workers would move back in—and walk to work.

► Why provide parking space for everyone who works in a downtown office building? People who drive to work downtown usually don't use their cars all day. They thus wastefully monopolize parking space. They have no right to. They should go to work at least part way on buses and street cars.

► On that score, why not improve mass transportation facilities? Service on them has as a rule deteriorated so badly that people will do anything to avoid riding on a street car. One simple way to make bus and street car travel more attractive would be to provide more space for passengers' bundles.

"Take a woman who shops downtown and has to take along a child," says Blucher. "If she's lucky enough to get a seat on the way home, she has a lap full of bundles and child. This of course is a physical impossibility. Yet I don't know of a single bus operating within a city which has any place you can put a bundle other than in your lap or on the floor."

► In the parking facilities themselves, charge less for first-hour parking than for the following hours. That would encourage short-time parking. Private parking lots can't operate profitably this way, but municipally-owned lots—and there are more and more of them—can. Now, says Blucher, you probably pay 50 cents for the first hour, 10 cents for each added hour. It should be 15 cents for the first and second hours, and 50 cents for the third.

Blucher believes that parking planners would do well to bear this in mind:

"The cheapest form of locomotion is still our legs. If we have to move people, the best way to move them is on foot. The second best way might be on bicycles. The third best way is certainly by mass transportation facilities. Only after that by means of the private automobile."

The **ATOM** *in our time*

Here is a report, as down-to-earth and factual as we have been able to make it, about what's being done to harness atomic energy for peacetime work.

We have prepared this series because we think the atomic energy program is at a turning point.

In the last few months, the Atomic Energy Commission has been working out comprehensive, long-range plans for the use of atomic energy elsewhere than in bombs. It has been pushing some of the work on the atom out of the laboratories of pure science into practical application.

The time has come to put the whole picture into proper focus. This is important to you because *you*—not the atom—are the important figure in the atomic picture. Your resources are being used, on a prodigious scale, to finance research which will transform the world. You will share the responsibility for adapting our social and economic system to the liberation of inexhaustible energy. It is *your* life that will be changed.

On December 2 it will be five years since a word from Dr. Enrico Fermi, spoken in a squash-tennis court in Stagg Field, Chicago, released and *controlled* the atom's energy for the first time. Three years later came the destruction of Hiroshima and Nagasaki, and the official announcement that "the atomic age had begun."

The atomic scientists, and the government officials and industrialists who work with them, never forget that the atom bomb, its radiations and the gases which may accompany "improved" bombs can destroy civilization.

If the atom bomb is used again, the *peacetime* uses of atomic energy are not likely to concern us.

But this report does not talk of the military uses of atomic energy. Neither does it deal with the remote prospects of high theory. This report is concerned with the outlook for the foreseeable future—in industry, chemistry, health, and to the ordinary consumer.

We have visited and talked with many scientists and engineers—always with one big question in mind: how, *concretely*, will atomic energy affect *your* life in *your* time? For some answers, turn to the following pages.

IN INDUSTRY

Atomic power will be here by 1952--but don't alienate your coal dealer

AN atomic power plant will certainly be functioning by 1952, and possibly as early as 1950.

It is to be built by General Electric, under government contract, at the new 20-million-dollar Knolls Laboratory near Schenectady, N. Y.

What will this plant be like? It will have generating equipment no different from that of a standard power station. But the furnaces and coal-handling equipment will be replaced by an atomic pile equipped with a cooling agent, perhaps molten bismuth or a sodium-potassium alloy, which will be pumped into a heat-exchanger to run the generating equipment.

What will it do? The G. E. pilot plant may produce 10,000 KW of thermal power. Converted into electrical power, this will be enough to meet the power needs of a city of several thousand people. It will consume only a few pounds of fissionable material per year. Above all, the G. E. pilot plant will teach us the best way to build practical power piles for larger output. It will probably be followed, after 1950, by several larger atomic power plants for full commercial and industrial operation.

How much will such plants cost? The best present estimate is that a 75,000 KW plant erected somewhere in the Northeast will cost 25 million dollars. If it runs at full capacity, and carries interest charges of 3 percent on the investment, operating costs will be about 8 mills per KWH.

Will other power sources be outmoded? No, so far as we can see now. We will continue to rely chiefly on present power sources: coal, oil, water. A coal-fired power plant having the 75,000 KW capacity of the nuclear-fired plant described above costs only 10 million dollars. With bituminous coal of 13,500 British Thermal Units at $7 per ton, the coal-fired plant operates at 6½ mills per KWH. So coal has a clean competitive advantage.

Nuclear energy is more likely to *supplement* our existing power sources than to supplant them. Atomic plants will be built where coal and water power are lacking, or where industries want to carry out refining operations close to the location of raw materials.

The cost of a nuclear power installation is likely to come down as methods of construction are simplified. But it probably will always be higher than competitive installations. Some experts believe that meanwhile the cost of coal will be lowered, and the efficiency of standard power

HOW AN ATOMIC PILE WORKS

The atomic "pile"—scientists call it a "reactor"—is just a type of furnace.

The kind of pile that scientists are working with today is about the size of your living room. It's made of graphite, shaped like a cube, and has holes in it. The fuel is a light form of uranium metal called uranium 235. Bars of it are put in the holes. The "match" is a sub-atomic particle called a "neutron" because it has no electric charge.

In the atomic universe, there are always a few foot-loose neutrons wandering around, looking for some place to go. When a neutron travels through a substance like graphite, it slows down. If, when slowed down, it runs across an atom of uranium 235, it will plunge into the nucleus of that atom. The nucleus then breaks up ("fissions") and, in about one millionth of a second, it releases:

► One to three more neutrons which go on to hit other uranium 235 atoms, thus knocking

conversion methods increased, as a result of techniques discovered in the course of atomic research.

Nevertheless, by 1970 atomic power plants will have made a big difference to the world we live in. To appreciate why, it's necessary to remember that our productive capacity may theoretically be large enough to supply a market of 2 billion people—if the market existed. Most of the world's potential customers, however, are too poor to buy from us. They lack the coal and oil which support industrial progress. But in two or three decades, they may have atomic power which can be generated any place on the earth's surface.

This will mean a higher standard of living for regions like India, China and the Middle East, and an increased flow of trade between those regions and the U. S.

The British are also working on a pilot plant and hope to have it operating experimentally in 1948 or '49. Coal is expensive in Britain, so atomic power is more feasible economically for the United Kingdom right now than it will be here for many years. The Soviet Union, too, may use nuclear energy for electric power to greater economic advantage than the U. S.

Are atoms useful for propulsion? Yes, within limits. An atomic pile requires enormous sheets of lead, cement and other substances to lock in the deadly radiation. They bring the pile's weight to around 100 tons. This weight, plus the fact that the pile has to be run by remote control, sharply limits the use of nuclear power for locomotion.

Large ships can manage these handicaps adequately. The U. S. Navy, with the assistance of AEC scientists, is working on designs for an atom-powered ship. Studies of its performance will give a clue to the possibility of using nuclear fuel in passenger and cargo vessels, and will provide an estimate of costs.

Most experts think it likely that, within 15 to 20 years, non-military vessels will be built with nuclear-powered engines. Such vessels will be able to travel indefinitely without refueling.

Fairchild Engine and Aircraft, with an

out still more neutrons which hit more atoms, and so on. This is a "chain reaction."

► Heat.

► Radio-active fission products ("atomic ashes").

Accumulate the right amount of uranium 235, and the collisions of the neutrons with the nuclei occur instantaneously in an *uncontrolled* chain reaction. Result: the bomb.

But large enough amounts of graphite can cut down the rate of collision and produce, instead of the bomb, a slow, steady release of heat and radiation. This is a *controlled* chain reaction. The heat can be captured by circulating water around the uranium bars, pumping it into a heat-exchanger and running a turbo-generator. The nuclear energy, heating the water, takes the place of coal in a power plant. Result: electric power.

Even more useful than the heat, scientists think, are these fission products which are "radio-active isotopes" of common elements. An isotope is merely a special form of an element, chemically identical with the element, but slightly different in weight. Some isotopes are "unstable," which means that they change into other elements. But while they are changing, they give off energy in the form of powerful and dangerous radiations—just as a burning log gives off flame and heat while turning into gas and ashes. So they are called "radio-active" isotopes.

These radio-isotopes enable us to study what happens to particles too small to be seen through microscopes. Insert a bit of radio-active matter into any substance, and you can trace the substance with Geiger counters, spectroscopes and other radiation measuring tools. Thus radio-isotope "tracers" are new keys to unlock vast new secrets in physics and chemistry, with practical applications in scores of directions, from metallurgy to nutrition.

assist from AEC, is now working on plans for a jet-propelled army airplane powered by a pile. The first model, due by 1950, will almost certainly be a robot because no way has been worked out to shield the crew of a nuclear-powered airplane from radiation. And it seems that the present cost of nuclear-powered planes will limit them to military uses.

Atom power for locomotives is classed by engineers as a marginal case. They think that, when the cost and size of the pile are reduced, such power will be possible but probably not worthwhile as an economic proposition. But electric locomotives will eventually run on power from nuclear energy power plants.

How about small atomic motors? The nuclear-powered, lightweight engine, capable of being installed in an automobile or used as a small power installation for factories, is far from reality. The laundryman who wrote the AEC last summer that he'd like to order a couple of atomic engines to run his washing machines will be lucky if he even hears about a real one by 1970. Put down 1975 as the earliest date when there's any likelihood of a small atomic motor being a practical proposition.

One of the few serious scientists who has speculated out loud about a portable motor is George Gamow of Washington, D. C. He thinks we may eventually learn to store nuclear energy much as electric current is stored in a battery. But we may first have to find other forms of nuclear energy than we now get from uranium and its man-made descendant, plutonium. We also will have to devise simpler methods—which aren't in sight—of controlling or using atomic radiation. Nobody knows what all this will cost.

How useful are radio-isotopes? As tracers and as sources of radiation to improve processes and products, radio-isotopes are of even greater long-range importance than is nuclear heat for industrial energy.

The oil industry, among many others, has already put radio-tracers to work. It uses them to study the composition of an oil-bearing region. Mixed with mud and forced underground, the versatile tracers not only reveal how much oil-rich strata there is, but also tell to what extent the strata are mixed with water, how permeable they are, and how porous. The tracers also distinguish between sandstone and limestone formations.

The petroleum "cracking" process is a complicated one requiring high temperatures. Radio-tracers are being used to determine the exact molecular changes involved. Eventually the oil industry hopes to use radiation to produce catalytic effects at low temperatures and thus speed up and simplify the whole process.

Metal industries use tracers to study the molecular structure of alloys, to measure the sulphur and phosphorus content of iron and steel.

It is expected that this research on metals and alloys will soon make available new processes for increasing the efficiency of gas turbines.

The use of radiation in industry is so promising a field that it has itself created a new industry whose member-companies supply instruments for measuring and applying radiation. One company, Tracerlab of Boston, has on file hundreds of possible ideas for industrial application of tracers.

Among these applications are detection of leaks, liquid level control, control of homogeneity in chemical mixtures, location of foreign bodies and contaminants, testing efficiency of water turbines, elimination of static charges, flaw detection (as in hollow airplane propellers), control of film in tinplating and of ink in printing.

Businessmen who wish general information on industrial aspects of atomic energy should write Carroll L. Wilson, General Manager, Atomic Energy Commission, 1901 Constitution Ave., N. W., Washington 25, D. C.

A partial list of industries which are likely to be affected in the near future by radio-isotopes thus includes: plastics, synthetic rubber, petroleum, chemical engineering, metallurgy, pharmaceuticals, radiography, photography. The limiting factor now is the lack of trained personnel. Already some radio-isotopes are more available than men who know how to put them to work.

As technical training begins to catch up with the potential applications of atomic energy, almost all industries will be able to move toward greater efficiency—toward more products and lower costs.

IN CHEMISTRY

How is the sun able to support life? Chemists may soon copy the process

RADIATION chemists, working in fantastic laboratories such as you never saw in your school days, are systematically studying all the elements, on a scale never before attempted. The object is to see how elements really act, alone and in combination with other elements, and what this behavior means practically.

In these laboratories the dreams of the old alchemists already are being surpassed. Nowadays other elements *can* be changed into gold, but the atomic scientists aren't interested in adding to the underground heap at Fort Knox.

Instead, they are busy transmuting gold into an isotope of mercury. This isotope, which is sharply measurable with a spectroscope, now provides a new method for easily standardizing measurements. Here is something *really* valuable.

The element called fluorine is a further illustration of what the radiation chemists are doing with their wondrous new tools for manipulating the infinitesimal.

It has long been known that fluorine has remarkable properties in chemical combination with other elements, especially carbon. But fluorine is corrosive, poisonous, violently unstable. (It sets water on fire.) Before the war, making a few grams of it was so complicated and costly that fluorine was not available commercially at any price.

But the atom bomb makers had to study its uses, and did so with such success that fluorine was marketed by major chemical companies for the first time this year. It is now used in industrial processes involving refrigeration, air-conditioning, synthesis of high-octane gasoline, insecticides, heat-transfer media, dyes, plastics, pharmaceuticals, lubricants, tanning agents, fire extinguishers. Chemists talk of a fluorine lubricant which will outlast an auto motor and enable all engines to work at much higher temperatures.

Results equally impressive are in the offing as a result of other studies. Dr. Milton Burton, former chief of radiation chemistry at the Chicago laboratories of the Manhattan District, thinks that cold light from radio-phosphorus is on the way. Scientists know that bombarding phosphorus with ultra-violet and other rays gives light as bright as that from electric bulbs. Now quantity production of radio-isotopes raises the possibility of producing cold light from phosphorus at little cost.

Radiation, Dr. Burton predicts, will soon be used to purify city water and sterilize sewage. The radiations could be obtained from a municipal atomic power plant.

But the challenge which most excites the chemists is that of photosynthesis—the process by which plants transform the energy of the sun into organic compounds, store them up for their own use, and thus make possible animal and human life. Photosynthesis is the basic chemical process by which life is maintained, and for

the first time in history, chemists have learned something about how photosynthesis gets started. Recently one chemist ventured a guess that, with the use of tracers, the full secret may be discovered in 10 years.

Once photosynthesis is understood, it should not take long for man to be able to duplicate it in the laboratory. Scientists hold their breath at the prospect that by 1970 the energy of the sun will finally have been harnessed and put to work at man's will.

But the immediate prospect is that artificial photosynthesis will enable us to increase the world's harvests. Plants are only about 20 percent efficient in using the sun's energy. An increase in this efficiency will create more food.

One scientist has suggested a concrete way in which nuclear energy, radiation chemistry and artificial synthesis may be linked together. He points out that an atomic power plant, built in an arid region of the Middle East, India or China, can provide electric energy to industrialize the whole region, radiation to extract minerals from sea water and make it suitable for irrigation, and artificial photosynthesis to make the deserts more fertile than some farm lands are today.

ON THE FARM

Tracers show how to improve the land get letter and cheaper food products

ATOMIC energy is a tool with which the farmer can make the soil surpass its supposed limitations. Agricultural scientists, using radio-active elements to blueprint plant and animal life, see the way to improved soils and fertilizers, healthier plants and animals, superior food products.

Certain substances which can kill plants or retard their growth are on the market. But scientists up to recently haven't known *how* these substances work, only *what* they do. One of the substances, 2,4-D, kills weeds but leaves grass unscathed. Others slow the growth of beans and similar plants.

The "how" of these substances is being fathomed by tracers. Researchers at the Department of Agriculture's Experimental Station at Beltsville, Md., now are able, under controlled conditions, to keep apples from dropping from trees until the fruit is mature.

There is hope that the same process may be used to keep apple buds closed until the cold season has passed, and thus insure against damaging freezes.

Other types of plant growth regulators may prevent bananas from ripening without using refrigeration to retard the process. Refrigeration is now necessary and tremendously costly.

Further applications of the growth regulator principle may yield eyeless potatoes and seedless tomatoes.

Tracers also are making possible the first accurate measure of the nutrition which plants actually draw from the soil. Such research will surely lead to improved fertilizers.

Soil liming now costs American farmers 100 million dollars annually. At Cornell University, scientists are putting tracers in lime to follow the calcium from the soil through the plants. Cheaper and more efficient liming may soon be a reality.

At the Ohio Agricultural Station, experimenters are getting new data on the role of phosphorus and chlorine in corn production. At the American Smelting and Refining Co., Salt Lake City, Utah, the effects of sulphur on bean and tomato plants are being checked with radio-active sulphur. The development of better corn, beans and

tomatoes—more cheaply produced—is therefore likely.

Orthodox laboratory methods of studying plant diseases are tedious and sometimes inaccurate. With tracers, causes of plant disorders can be watched as they work. Once disease causes are accurately labeled, disease control will be easier.

Chlorosis is a disorder which causes a plant to lose its green color. Some plants lacking this greenness fail to take in nutrition properly. Scientists already know that lack of iron and perhaps of phosphorus contributes to this condition. Working with radio-active iron and phosphorus, they won't have to guess much longer.

West Coast citrus fruit growers know that the sulphur in insecticides and fungicides affects their fruit. At the University of California, radio-active sulphur is substituted for stable sulphur in experiments. Fungi and insects are killed as they were before, but the tracers also tell what is happening to the oranges, lemons and limes. Safer sulphur sprays and dusts will be of immense value to California fruit growers who use as much as 550 million pounds of sulphur a year for protection of their crops.

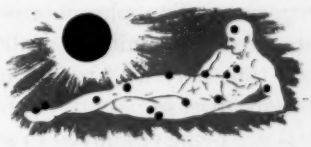
Better livestock also may be expected in the atomic age. University of Florida researchers, working with the Department of Agriculture, are finding out how copper and cobalt influence the growth of pastures and the cattle grazing in these pastures. With tracers, the investigators follow these minerals from the grass right through the cow's digestive and circulatory systems.

University of California agriculturalists are recording the effects of sodium bicarbonate, sodium lactate and sodium acetate on cows. These experiments will lead to correction of mineral deficiencies in cattle feed.

Beyond the use of radio-active tracers to speed agricultural research lies the largely unexplored realm of direct use of atomic radiation on the farm. Radiation is known to alter normal reproduction, and may lead to controlled breeding of better crops and considerably sturdier livestock.

If this effort is successful, the practical applications will be almost unlimited. Housewives, for example, now prefer a type of small pea which is tender and sweet. (Larger peas contain more starch.) But it may be possible, by controlled breeding, to produce *larger* peas with the tenderness and sweetness of the small type—and at lower cost to the truck farmer.

And so, at long last, substantial control of the land and that which grows on it may soon belong to the farmer.



IN MEDICINE

Atomic aids will help doctors combat cancer, heart disease, many other ills

ATOMIC energy in medicine is a two-edged sword of promise and danger.

The promise is in the exciting new discoveries made possible by atomic tracers and radiation in all spheres of medical knowledge.

The danger lies in the freakish forms of agony which atomic radiation produced at Hiroshima and Nagasaki and which can be duplicated anywhere by careless handling or ignorance.

Despite all the progress made by medical science, very little is known about the *actual* functioning of the human body.

But now the radio-active isotope promises to open up spectacular new knowledge about how the body works, how diseases strike, and why and how cures are effected.

These advances are being made on all medical fronts.

New Basic Knowledge. The body is continuously being made over as new cells form to replace old ones. The inner work-

ings of this process now are being followed through use of hydrogen, carbon and nitrogen isotopes as tracers. Scientists now know that half the body's blood plasma is replaced every 12 days and that liver protein is rebuilt every six days.

Radio-active phosphorus is being used to study immunity. Vaccination, boon to mankind in controlling smallpox and other diseases, has been based upon knowledge that human beings somehow develop immune substances which tend to neutralize disease germs. The phosphorus isotope may show *how* immunity is really developed, and thus may lead to immunization against more diseases.

Tracers are being employed to scrutinize the mechanisms and functions of hormones, vitamins and various drugs. These studies will explain, for instance, how penicillin and the other "wonder drugs" work in fighting infection. Then the drugs can be controlled, made more effective.

At the government's National Institute of Health in Bethesda, Md., specialists are tracking down the mystery of tropical diseases like filariasis, which are caused by parasitic worms. The adult worms are in the victim's tissues and their offspring are found in the bloodstream. With radio-active antimony tracers it may be possible to find out whether adult worms can be reached by drugs injected into the bloodstream.

New Methods of Diagnosis. The injection of radio-active salt into the bloodstream is becoming a standard technique in detecting gangrene. By clocking movement of the salt with a Geiger counter, a surgeon can readily tell how far infection has impeded circulation.

Cancer research is being immensely stimulated by the use of radio-active isotopes as illuminating pathfinders exposing the nature of the disease. It is almost certain that tracers will be a prime diagnostic tool in cancer, enabling a doctor to detect the disease in its early stages, when chances of successful treatment are best.

New Methods of Treatment. Scientists at the Berkeley Radiation Laboratory in California are working on alpha-particle techniques which may do away with X-ray treatments, always hazardous when used to destroy diseased tissues inside the body.

X-rays damage healthy tissue in their path and have less energy when they finish than when they start. Alpha particles, a form of atomic radiation less dangerous than others, increase in potency as they travel. So alpha-particle radiation may take the place of X-rays.

Medical technicians at Berkeley hope an alpha-ray machine will be functioning successfully in three years.

Hardening of the arteries is known to be caused by excessive deposits of calcium. There is hope that radio-active isotopes will break up calcium deposits and then, in combination with other elements, eliminate the calcium from the body.

Research on diseases related to cancer has already brought some positive results. At Memorial Hospital in New York, treatment with radio-active phosphorus has been followed by complete disappearance for two years or more of symptoms of polycythemia, a disease characterized by abnormal formation of red blood cells.

Medical research, of course, often combines all three objectives—the gaining of basic knowledge, new methods of diagnosis and new techniques of treatment. Radio-active sodium from the Oak Ridge pile goes to Tulane University where a harmless quantity of it is mixed with ordinary table salt. This mixture is injected into the veins of patients with congestive heart disease. By clocking the progress of the radio-active salt through the body, researchers have discovered that these patients secrete 50 times more sodium than normal persons. The researchers have gone on to find a mercury compound which stimulates the elimination of sodium and improves the heart disorder.

One reason why all atomic medical research is moving along rapidly is because isotopes are becoming cheaper. The first

radio-active isotope for peacetime research was delivered to a St. Louis cancer clinic August 2, 1946. The price of this isotope (carbon 14) was $347. It is now listed in the AEC radio-isotope catalog at $33, the cost to the government of its manufacture.

Many of the diseases now being investigated with atomic aids are diseases of old age, against which science has made little headway as yet. The prospects are good enough to suggest that by 1970 medical science will not only have conquered a host of diseases, but will have added another span to human life.

FOR CONSUMERS

Life will be easier, more convenient, richer in opportunity--and adventure

RESEARCH is being turned into usable energy and packageable products more rapidly in the case of the atom than ever before in the history of science.

It took 50 years after Faraday demonstrated electromagnetic induction before electric power was put to work. But already from our control of nuclear energy and radiation we have new applications.

And so it is possible to sketch out how some of the new techniques and discoveries may fit into the lives of—let us say—a couple who, in their early forties in 1947, will be beyond middle age by 1970.

Our couple may well get electricity from an old-fashioned power station. But radiation techniques applied to petroleum processes and to coal mining will probably have reduced the costs of these fuels, just as they will have produced gasoline and lubricants which will have a much longer life.

Our elderly couple will be very conscious of the effect of radiation in their daily lives. By 1970, it will have curbed such illnesses of age as cancer, arteriosclerosis, heart failure. Men will die when their time comes, but there will be less senility.

If they are still rather up to date in their ideas, our elderly couple will very likely be living in a plastic house. By 1970, the range of plastics will have been immensely widened by radiation treatment. Construction plastics will be cheap, light and as durable as metal.

But it's not impossible that the house they live in will be made of some cheap wood. New methods of irradiating lumber will have made even the softest wood as durable and attractive as any other building material.

Our elderly couple also will enjoy some convenient uses of atomic energy in their everyday life. Irradiation will have produced foods richer in energy, and foods will be treated by irradiation to prevent spoilage.

If the husband has been looking for new fields of enterprise, he may by 1970 find himself participating in a business which didn't even exist in 1947. It may be some branch of industrial chemistry or engineering opened up by the processing of light metals like beryllium (already developed for X-ray and similar equipment), or cobalt (already cheaper and just as good as radium in a variety of applications).

Some time in their later years our elderly couple may witness the beginnings of the next great adventure of the human race. Physicists as cautious (and authoritative) in prediction as J. Robert Oppenheimer have spoken of the new possibilities of interplanetary travel, and given sympathetic advice to the American Rocket Society, whose members want to build a robot space rocket.

Our elderly couple, witnessing the departure or return of a moon-rocket, will know that the first trial has been passed in the race which will eventually send man, using the energy of the tiny solar system called an atom, out to explore the solar system to which he belongs.

WHAT NOW?

But the atom also creates problems; if we can solve them, abundance is ours

MEN have never used new forms of power, whether mechanical, electric, or even the simple power of fire and water, without creating new problems while solving old ones.

We know that this is true of atomic energy, too. Its first use was for destruction, and the main efforts of this country (and every other) are still going into the military potential of the atom.

But there are big differences between the problems created by the atom and those created by other forms of power. The differences are that atom problems are everybody's problems, and that they will make their impact felt in almost every field of activity.

It was the relatively conservative, capitalistic U. S. Congress which decided to socialize our atomic resources and asked the rest of the world for international socialization of atomic power. (And it is the U.S.S.R., supposedly socialist and international in ideology, that has refused.)

Congress has not decided how atomic processes and products are eventually to be manufactured and marketed, although it does require a report 90 days before an industrial license is granted by the AEC. Such a decision will have to be made soon.

Companies like Du Pont have pulled out of the atomic program, and others like Monsanto are getting restless, partly because they have no patent rights and no full permission to exploit discoveries commercially. Most of us will want this problem solved in a way which does not foster too much power either for government through the AEC or for the big companies which by necessity have been in atomic research from the beginning.

Another problem: In the long run, atomic power also will be produced by Britain, France, Russia, perhaps other countries. But who—the U. S. or, say, Russia—will help undeveloped nations like China develop atomic energy programs? Barring an agreement in the United Nations on international control, this is a choice which will have to be made.

Such decisions will be not only political and military, but also economic. In developing backward countries, we will be developing new customers, and in order to sell to them, we will have to buy from them too. This will mean economic dislocations here at home.

None of these problems is overwhelming, compared with the abundance of power and wealth which the atom also offers us. But how they are met will determine how soon we become fully at home in an atomic civilization.

If they are not met properly, and the world settles down to an atomic arms race, the pessimists may be right. They think that the interplanetary flights foreseen for the end of this century may be more than an adventure: they may be a necessary escape for a handful of the human race fleeing a world which man will have turned into an inferno.

But there are optimists among the experts, too. Men like Arthur Compton, one of the chief scientists of the Manhattan District, think that in a few decades atomic research not only can make possible the abolition of poverty and hunger, but can have made nations so inter-dependent that war will be impossible. The most urgent step, he thinks, is for the U. S. to train the young scientists and atomic technicians who are now woefully few, and to speed their discoveries out of the laboratories into the nation's industrial plants, farms, hospitals and homes.

Kennelly

A Businessman as Mayor

REFORMER IN CHICAGO

No city administration is being watched more closely than that in Chicago.

The reason: Chicago has a new mayor, a talented and universally-respected businessman who has never held an elective public office before. He is Martin H. Kennelly, elected last April. He means to give the Lake Michigan metropolis a businessman's government.

The significance: Chicago is the center of the world to perhaps a third of the nation's people and to scores of thousands of business enterprises. It is the greatest farm, transportation and manufacturing town in the world. It is a trend-maker for a good part of the U. S.

"MARTIN KENNELLY," said Jake Arvey after the new mayor was installed, "is really too fine a person to be in politics. But what a mayor he'll make!"

This tribute comes from a significant source. Arvey is the boss of the local Democratic machine, having taken over from former Mayor Edward J. Kelly. And Arvey is the man responsible for Kennelly's nomination and election.

On the surface, the Kennelly-Arvey relationship looks like a familiar story: a political innocent is nominated on a "reform" ticket, with the enthusiastic backing of a political gang which, after the votes are in, manipulates the reformer.

But this time the story is different. Kennelly has made no commitments to his Democratic sponsors. Even the most skeptical Chicagoans accept this as fact. And Arvey, the faithful servant of machine Democracy for some 30 years, is backing Kennelly all the way, apparently in complete good faith.

So the new administration is shaping up as a genuine reform regime. Kennelly himself is leery of being called a "reformer," but only because his approach is businesslike, not bluenosed. Yet the indications are that he will be thoroughgoing, and that the system of racketeering, "protection," shakedowns and bribery on which Chicago has been run will be sharply curtailed.

Kennelly embarked on his job last spring with as much support as any officeholder could hope for. Prominent Republicans had campaigned for him. Businessmen, church groups, labor leaders plumped for him before he was officially nominated.

What sort of man is Kennelly to have earned such broad support? Born in the poor Bridgeport district on the South Side, Kennelly managed to scrape through business school and get started in the storage business before doing a stint in World War I. Afterwards, with a brother, he started his own storage firm. Kennelly nailed his first job for the new firm by sending Stanley Field, head of the Field Museum, a letter of recommendation he had earned 20 years before as a stockroom boy in Marshall Field's wholesale house: "He did his work well and we found him honest." People have been saying that about Kennelly ever since.

This reputation for efficiency and honesty helped make Kennelly president of Werner Brothers-Kennelly Co., one of the big warehouse firms of the Midwest, president of the National Furniture Warehousemen's Assn. and of Allied Van Lines, a federation he organized.

Kennelly was responsible for having fair employment practice clauses written into labor-management agreements in his industry. This was in the 20's, long before the New Deal. Union leaders give

him credit for the fact that there hasn't been a strike in the furniture moving industry for 25 years.

Up to the time he became mayor, Kennelly never accepted a salaried public office. His infrequent political appearances were all in the Democratic opposition to the Kelly machine. When World War II came, he dropped both business and political interests to head the Red Cross drive, which was notably successful in Chicago.

After last November, when the Republicans made a clean sweep of Cook County offices, it seemed that any good Republican could beat Ed Kelly if Kelly ran again for mayor. Over 70, Kelly was weary and upset. Particularly, his administration's mismanagement of the schools had aroused the kind of public resentment no politician can afford.

R. R. McCormick, publisher of the Chicago *Tribune* and key figure among Illinois Republicans, apparently assumed that victory was in the bag. He dictated the nomination of a political jobholder with no public following and no known qualifications.

Arvey countered by persuading Kelly to retire and by offering Kennelly full party backing, with no strings attached. When Kennelly accepted, it was all over but the precinct work.

Kennelly managed his own campaign, with headquarters separate from the Democratic machine's, and talked about the kind of government he wanted to give Chicago. Tall, dignified and affable, with his white hair, friendly grin and straightforward manner, the 60-year-old Kennelly went over everywhere. He won by a record majority.

Arvey, the civic-minded political boss, has puzzled Chicagoans before. An organization man of tenacious loyalty, he was also an effective alderman. As chairman of the City Council finance committee, he helped pull Chicago from the verge of bankruptcy in the 30's.

Part of the explanation of Arvey's character goes back to two things which Arvey shares with Kennelly: a hard struggle for success, and a real enthusiasm for Chicago's future.

Moreover, Arvey has done something other ward bosses rarely do: he went into law practice and made himself independently wealthy. Today, as senior partner in a well-reputed firm, he is far removed in outlook and manner from his colleagues of the city machine.

When war broke out Arvey dropped his political connections and, despite being over-age and in indifferent health, served 4½ years in the army—2 of these years in the Pacific. Intimates say that his war experiences, which were shared by his two sons, strengthened a conviction which had been growing in Arvey during the New Deal period: local governments would have to offer something more in the future than the old system of spoils politics.

If this appraisal is true, Kennelly's nomination can be construed as the new boss's move to make good on these convictions.

THE City Council, where Arvey's influence is paramount, is hard at work carrying out Kennelly's program. To politicians who grumble when the new mayor slashes a million dollars from the payroll or shakes up a department, Arvey replies: "Sure, it's bad for the organization today; but in the long run it will be good for the city and the party too."

With the new regime only five months old, the real tests for Kennelly and Arvey are yet to come. Nobody can do the housecleaning job which is needed without fighting organizations and interests which prefer Chicago as it is: disorganized and decrepit.

At the root of Chicago's many ills is the ancient 1870 constitution of the State of Illinois. This constitution can be amended only by a majority of all the voters casting their ballots in an election. This is a stiff requirement—so stiff that the constitution hasn't been amended in 39 years.

As a result, Chicago's taxing system just

grew up in a haphazard way. Today it is a bewildering hodge-podge. Taxing powers are shared by some 400 agencies in Chicago and Cook County.

This same constitution has made it impossible to integrate or get rid of the host of overlapping governmental subdivisions in the Chicago area. The mayor's powers are limited by semi-autonomous park, sanitation, transit and other authorities.

Moreover, this millstone of a constitution has kept Chicago dominated by rural parts of the state. Cook County, with half the state's population, has about one-third of the representation in the state legislature. Illinois gets most of its revenues from Chicago, but for every $10 Illinois collects from Chicago it returns only $1 to the city.

Chicago is marked by ominous signs of decay. For decades, families and businesses have kept pushing away from the congested, oppressive center of town, leaving behind properties which quickly deteriorated—and which yield little or no tax revenue.

Today slums spread like sores over miles of territory west and south of the Loop. Nine square miles of the city are officially designated as blighted; another 12½ square miles as "near-blighted."

The city has yet to modernize its local transportation, or build modern railroad terminals. It still dumps some of its sewage in the Chicago River. When a city official was asked what prevented an epidemic, he replied: "Luck."

The Capone-Guzick "syndicate" is still going strong. Although the big gambling joints have moved to nearby counties, handbooks and dice games operate all over the city. The jukeboxes are only one example of a city-wide racket organized by the "syndicate," with political and labor tie-ins. Businessmen often find it impossible to get licenses or stay in business without making "contributions." The "fix" is deeply entrenched, and not only in the Police Department.

On these problems, which by no means exhaust the catalog of Chicago's troubles, Mayor Kennelly has made a vigorous assault during his first five months. He ordered wholesale transfers in the Police Department, a move calculated at least to hamper the well-grooved flow of graft. He also fired hundreds of city employes because he couldn't see what they were contributing to the city.

The resignation of the Superintendent of Schools had paved a way for getting the schools out of the hands of politicians. Kennelly's Board of Education appointed an experienced educator whose record is beyond reproach.

To raise additional revenue, the new mayor called in a group of Chicago industrialists and financiers, outlined the problem, and enlisted their help. As a result, several influential Republicans are now putting pressure on Governor Green to give Chicago a fair share of tax money.

Even if he can't work miracles, there is little doubt that Kennelly will serve his city well. He likes to recall how as a boy he watched his mother putting weekly savings in an old sugar bowl to pay the annual tax bill. The resentment, implicit in this story, over misuse of the hard-earned money of Chicago's poor is a real factor in Kennelly's approach to government.

Kennelly's backers are certain that one four-year term won't be enough for the task, and many political observers in Chicago are sure already that he can be mayor as long as he likes. When he goes, the chances are that Chicagoans, who through the years had almost despaired of good government, will be glad to endorse the letter of recommendation Kennelly earned as a schoolboy: "He did his work well and we found him honest."

THAT OIL SHORTAGE—*How about it?*

WE are in for an oil shortage this winter—a shortage probably extending into the next two years.

But beyond that time there is the promise of oil aplenty. By 1950, needed transport and refining facilities will be built. Middle East petroleum will be pouring to market. We will be beginning to extract from coal and shale all the oil we may require.

How bad the immediate shortage will be depends on a number of "ifs." If the winter is not severe and if there are no strikes to tie up oil production and shipment, only midwest industries and home owners will have to go easy on the amount of oil they burn. Only an occasional midwest filling station will run out of gasoline. The shortage will be regional and spotty, more bothersome to the industry than a hardship to consumers.

But if the winter is long, hard and blizzardy, if there are continued oil strikes, and if high coal prices frighten more industries and individuals into shifting to oil, the oil shortage will almost certainly be widespread and acute. Lack of oil may force some industries to close from time to time. Oil-burning homes may be chilly, and driving may have to be curtailed. The army and navy will feel the pinch.

Whether severe or light, the shortage will be a temporary one and out of the way by 1950 for the simple reason that it is not caused by a lack of oil. Production of crude oil still is in balance with consumption. The shortage that the industry is feeling and will continue to feel is due primarily to a lack of transportation to carry crude oil from fields to refineries, and secondarily to a lack of refineries.

The oil industry has not been able to get the steel to build enough new refineries, pipelines, tank cars, tank trucks, and other facilities to meet a post-war demand for petroleum products that has wildly outstripped all expectations. As oil men are quick to point out, the oil shortage is in fact a steel shortage.

It is, at the same time, much more than either. It is part of a basic national and international problem. Can we import enough oil to make up any deficit now or later? If we can, shall we? Does national security require the United States to be self-sufficient in oil? Can our wells continue to supply all the oil we need, or are we running out of oil? If the wells run low, can we make the necessary oil from coal, shale or other materials? How soon can this be done?

At the base of the current oil shortage and of these longer-term questions is the country's absolute and growing dependence on oil to run its myriad machines. Before the war, in 1938, U. S. demand, including exports, averaged 3,646,000 barrels a day. During the war, with this country supplying two-thirds of all the oil that ran the Allied war machine, demand climbed to a record 5,358,000 barrels a day. At the end of the war, almost all the experts expected this enormous consumption of oil to drop. Not until 1957 did they anticipate that the country would reach a demand of 5,700,000 barrels a day. But the experts were wrong.

THE country *this year* is using oil at the rate that wasn't supposed to be reached for another 10 years. U. S. oil use in 1947 will be 31 percent higher than in the pre-war period, 7 percent higher than at the war peak.

Although unforeseen, this gushering demand is now easily explainable. It was brought about by all of the following factors working together:

► ***Increased industrial activity.*** Utility power plants alone used 75 percent more

oil in the first four months of 1947 than in the same quarter of 1946.

► ***Swing to Diesel locomotives.*** With 3803 Diesel locomotives in use on first class railroads at the middle of this year, the railroads jumped their oil purchases one-third above last year. And they will want more oil in the future. Out of the 748 locomotives on order, 712 are Diesels.

► ***More farm tractors.*** The number in use has doubled since before the war, and 85 percent of them burn gasoline.

► ***More oil heaters.*** By the end of 1947, 50 percent more oil burners will be in use in homes, stores and factories than were in use at the end of the war. New burners now are going in at the rate of 50,000 a month. The average oil consumption per burner is 40 barrels a year.

► ***Mounting fuel use by autos.*** Although there are only 27 million passenger cars on the road as compared with 29½ million in 1941, they are burning more gasoline.

► ***More trucks.*** Number of trucks increased from 4,859,000 in 1941 to 5,423,000 in 1947, and trucks are using gasoline at a new high rate.

To meet this enormously increased demand for petroleum products, the oil industry has little more than its 1941 facilities. (Most of the war-built facilities were for special products such as aviation gasoline.) All refineries unhampered by transport difficulties in getting oil are running full tilt. All pipelines are carrying capacity loads. Every tank car that can turn a wheel is in use. Between 6000 and 7000 cars have worn out since the end of the war, and the industry is getting only 100 to 150 new ones a month instead of the 1000 a month it had hoped for in 1947.

The Midwest, which depends on pipelines and tank cars to supply it both with finished products and with crude oil for its refineries, is the hardest hit.

The East Coast, supplied largely by tankers, is not in so tight a spot. Plenty of tankers are left over from the war.

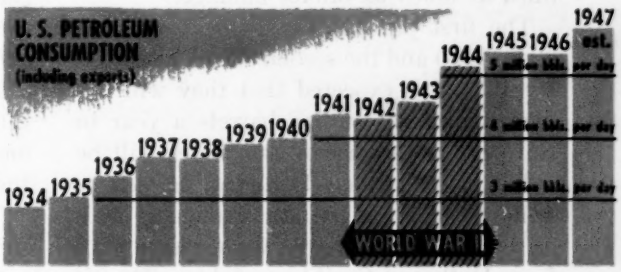
The Pacific Coast and Mountain States are largely self-sufficient in oil. But they are just about managing to break even now.

America's current tight oil situation unfortunately cannot be remedied by importing more oil. There's a world oil shortage, too. We already are bringing in just about all we can get—some 482,000 barrels a day.

Nor can the situation be materially improved by shutting off oil exports. They're substantial, about 430,000 barrels a day, but in the end they amount to only 8 percent of our production. They are absolutely vital to reconstruction abroad, which is vital to us. Russia's share, which has created much hullabaloo, is one-eighth of 1 percent.

The oil shortage that now has the country uneasy will be ended as rapidly as steel becomes available for construction of new pipelines and plants. The industry has laid out a 4-billion-dollar construction program, and hopes to complete it by 1950. Then oil men will be in a position to deliver all the oil that anyone may want.

Unhappily, one fatal flaw mars this pleasant ending. The United States has been drawing prodigiously on its oil reserves. Our known reserves now total only 22 billion barrels, although geologists believe that the U. S. still may find under its soil and on the continental shelf along its shores as much oil as has been discovered in the past. But even if this is correct and if some of the foreign drain on Ameri-



can oil is relieved, we still will not have enough oil for the future, either for peace or for war. The longer-range outlook would be disastrously bad if it were not for two new developments.

The first of these developments is the building of pipelines that will make it possible for Middle East oil to relieve American oils of the job of supplying Europe.

Shortly before the war American and British companies, aided by a few other national groups, opened up fabulously rich new oil fields in Saudi Arabia, Iran and other nearby sections of the Middle East. It wasn't economically feasible, however, to develop these fields fully. The oil had to be moved to Europe over an expensive 7000-mile tanker route. It was—and still is—cheaper to supply Europe with American and Caribbean oils, which must make only a 5000-mile tanker trip.

But this situation will be corrected soon. Standard Oil of New Jersey, Standard Oil of California, Texas Co. and Socony-Vacuum now are laying a 30-inch pipeline, the world's biggest, from Saudi Arabia to the eastern Mediterranean. Standard Oil of New Jersey, Socony-Vacuum and Anglo-Iranian Oil are planning a second pipeline to link the Persian Gulf fields to the eastern Mediterranean. So oil will move most of the way to Europe by pipeline, a delivery route which costs one-third as much as tanker haulage.

The first pipeline should be completed about 1950 and the second somewhat later. By 1955 it is expected that they will deliver about 300 million barrels a year to Europe. So American companies will be able to supply their European as well as some African and Asiatic customers with oil from Middle Eastern wells rather than from U. S. and Caribbean fields. The oil which formerly went abroad can then be held in the Americas.

If the world remains at peace, this arrangement will supply all countries with all the oil they will need.

But again, there is a fatal flaw. If war should come, the Middle East supply line might be shut off overnight, and the western world would have to fall back on American oils. Since these oils would not suffice, the U. S. does not dare to become dependent on an oil industry centered in the Middle East.

A way out of this predicament is provided by the second new development in oil: the extraction of oil from coal, oil shale and natural gas.

Under a 30-million-dollar research grant made by Congress in 1944 the Department of Interior lately has succeeded in demonstrating that oil can be made from coal and shale at a price only slightly higher than the cost of producing natural petroleum. Private oil and coal companies also have been successfully experimenting.

Pilot plants now are being built by the Department at Louisiana, Mo., and Rifle, Colo. At the Missouri plant, gasoline will be made from coal for 9 to 14 cents a gallon. Gasoline produced from petroleum now costs 6 to 8 cents a gallon at the refinery. The coal also yields aviation gasolines and all the other required by-products, lubricants and greases.

At Rifle, a barrel of oil is being extracted from shale for $2 to $2.25. A barrel of petroleum costs from $1.80 to $2.50.

SOME experts expect the new oil-from-coal industry to be ready for commercial operation rather quickly—in from three to five years. Perhaps it will take a little longer. At any rate, the United States may rest easy about its ultimate oil future. The country has enough coal to meet all conceivable requirements for both fuel and oil for 1000 to 2000 years.

The next few years may be a little hard for oil consumers, but the shortage will be a temporary one. It is not the beginning of the end of oil. The development of Middle East resources, and the virtual certainty that we can extract plenty of oil from coal and shale, guarantee that filling stations will not run dry a few decades hence, and that the U. S. will never be hamstrung for lack of oil.

THE JOB OF MAKING SALESMEN

Why you need the best sales training, and how to get it.

SMART management is concentrating thought, time and money on sales training as the buyer's market solidifies. The trend is nation-wide, stronger on the manufacturing and distributing levels, but gaining with the retailers.

By late fall the company without a well-integrated sales program may be left at the post in the competitive steeplechase which lies ahead.

It's very clear that in today's market—and more so in tomorrow's—the effective salesman must be armed with more than enthusiasm, a catalog and a car full of samples.

Hardly a startling conviction. But U. S. business has traditionally spurned sales training during times when demand exceeded supply, and then been caught unprepared when the situation reversed.

A lethargic portion of management still daydreams of the natural-born salesman, the fellow "who can sell anything." He comes to the company tailor-made, ready to step out and smash all selling records. But the believers in this mirage are steadily decreasing.

More and more executives are showing a willingness to shoulder the costs and responsibilities of formal sales training. They realize that the country's tremendous industrial expansion, the promotion of thousands of new products, and the manufacturer's need for even distribution all make it imperative that the salesman be as much an expert as the engineer and the production boss.

From the current activity some definite training trends have already emerged:

► Proper selection is being emphasized, which means that the competition for good men is at its keenest. At one eastern college this year 70 companies asked permission to interview senior class members, whereas only six companies had applied in 1940. At another equally good school, Westinghouse interviewed 60 men and made only six job offers. So the search for talent is tighter for two reasons: more firms are looking for talent, and most companies have raised their selective standards.

► Centralized, home office training is supplanting regional or field training. The conviction is strong that only in the home office can the prospective salesman get an intimate picture of his company and a thorough knowledge of its various products. Standard Oil of N. J. and International Harvester are among the big outfits which have established giant training centers since the war.

► Outlet education is receiving more and more attention. The salesman must be the teacher, capable of instructing his customers—whether they be retailers or consumers—in the intricacies of his wares and their proper use. This is particularly noticeable in the household appliance field where competition is already stiff.

One of the most thorough training programs was instituted recently by the Graybar Electric Company, Inc., appliance wholesalers servicing more than 50 major manufacturers. Graybar had 300 salesmen pre-war, is still short of its 1947 goal of 475.

Says the Graybar sales manager of the new men: "We're much more interested in giving them a thorough historical knowledge of the business than we are in teaching them how to part their hair or stick their feet in the doorway."

Graybar trainees are taught the policies

and objectives of the manufacturing companies, the functions and responsibilities of the distributors and the retailers. The trainees get detailed information on other distributors so they will know the type of competition they are most likely to meet. They are acquainted with the various types of dealers (department and furniture stores, utility firms, hardware merchants) and how their buying and selling techniques differ.

THIS program, like many others now being devised, places as much emphasis on following up sales as it does on the technique of obtaining them. Salesmen are taught to arrange their time so they can be in customer shops when the wares are delivered. They help arrange displays, go over the product's selling points with local dealers. They return to stores repeatedly, checking on sales and instructing dealers, if necessary, with slide films, movies and charts.

Oil firms, long outstanding in the sales training field, are tightening up their programs despite the fact that a seller's market will exist for them into 1949. Trainees at Socony-Vacuum Oil Co., Inc. now work about 15 months in the home office before being sent out on the road to sell. The goal is for every salesman to become a specialist in the industries served by Socony products.

Thus, the salesman of automotive fuels emerges from training as a potentially better service station operator than the man he is dealing with. By passing along his knowledge to the operator, the salesman increases the operator's efficiency, helps him beat competition, eventually helps him increase selling capacity. In this sense, the oil salesman actually performs for his customer as a part-time consultant.

Any firm overhauling an existent sales training program or contemplating installation of a new one would do well to start with the sales manager himself. Any manager with less than 16 years' experience on the job hasn't yet worked in a really vigorous buyer's market. There has been no such market, generally, over the long span of depression, recovery and war. So most of the country's sales executives will have to re-examine their own positions to make certain they can handle salesmen in a genuinely competitive market.

The sales manager most often slips up in screening applicants. Convinced that he's pressed for time, he makes the selective process a left-handed, odd-moment operation. Confident that he can read people like a pocket edition, he claims he can "feel" when a man's right for the job. Too enthusiastic, he oversells the job and its possibilities to the applicant.

Moreover, a poor sales executive doesn't have a blueprint of what he wants his salesmen to be, to know and to do, and he isn't clear himself on what set of attributes has made men either good or bad for the company. He hires too quickly, often on the basis of a single outstanding quality in the applicant, and he frequently takes on men who are too intelligent or too ambitious for the job available.

The result is that too many men in selling occupations shouldn't be there by reasons of temperament or ability. They should never have been hired in the first place, but they got through because of sloppy screening.

SUCH hiring errors are expensive. They do the employe grievous wrong. They soak the company in training costs, in salaries and in prospective accounts scared off by bungling sales tactics. No business can afford the waste involved in a heavy personnel turnover, the result of incompetent or haphazard selection.

The need for intelligent screening is even greater for small companies than it is for large concerns. One bad choice in a total force of 10 salesmen does more damage than one or two lemons in a force of several hundred. The sales manager who says he doesn't need systematic selection because he hires only a few people a

year is either stupid or lazy or both.

Norms have been established by which a sales executive can tell whether or not a prospect is good salesman material. Usually, the superior salesman has most of the following characteristics:

► He is dominating, either by personality, energy, knowledge or judgment. Dom*inating,* not dom*ineering:* the domineering salesman creates customer resistance and management headaches.

► He gets along well with all kinds of people through tact, tolerance and humor. This doesn't mean gin slings and girls and promiscuous good-guying; it means simply that he likes people and knows how to handle them.

► He is accurate in his knowledge and in his thinking, and he combines a grasp of fundamentals with an eye for details.

► He has the ability to assume both the buyer's and the producer's point of view; he can understand their objectives and their problems.

Some firms undertaking sales training programs may find that unionization of salesmen creates special problems. Unions demand full pay during the training period and pay for any work done after hours or on the road. In the last two years the unions have signed up wholesale wine and liquor, and retail radio, pharmaceutical and driver salesmen (milkmen, laundrymen, etc.).

But even if special difficulties and extra costs do crop up, these will almost always be outweighed by the benefits of a good sales training program. Incompetents will be weeded out, sales force morale will be lifted, personnel turnover will be cut. Your expectations of lower selling costs and increased volume will stand a good chance of realization.

You will be in the best possible shape for the buyer's market.

FOR A GOOD SALES TRAINING PLAN:

DO:

Determine whether your selling is primarily educational or competitive. If your product is in the introductory or pioneering stage, your salesmen must be trained to overcome buyer resistance in the form of inertia and habit. If you are in a competitive market with established products, then your sales force must be coached on the products' differential values. If you are halfway between these two stages, you must see to it that your men are well grounded in both selling techniques.

Define the salesman's job at the outset. Give the trainee a clear statement of what you expect him to do, where and in what time. Although an adequate job description is basic, few companies have a comprehensive one.

Use all your selection procedure documents—application blanks, personal history records, interview reports—to determine the outstanding weaknesses of your trainees. Then fashion the program to plug up those gaps and thus avoid wasting time on subjects in which the men are already well versed.

Make your training realistic. Give it an air of practicality by building it around genuine sales situations. And keep the program going. Salesmen are constantly meeting resistance. Their batteries run down. They must be recharged periodically.

If you are hiring from other companies, you will have to do some *de*training. You will have to work men out of acquired selling habits which may not be good for your type of operation.

DON'T:

Don't call your program a "school," "course," or "lecture series." Unless you want your men to lose interest before the training even begins, avoid the academic atmosphere and the use of words such as "teachers," "texts," and "examinations."

If you are working with both new and experienced men, don't mix the two groups in the early stages. The new men will be self-conscious, the veterans bored.

Don't count on pulling in your ace salesman and placing him in charge of training. Most top salesmen don't know how they sell; those who do know are often incapable of transmitting the technique to others. If you can afford it, the services of a full-time training specialist are desirable.

THESE CHANGING TIMES

Gas & Gasoline

Scientists are discovering ways to concentrate natural gas, then store it in a very small space. This will result in saving huge amounts of gas which are now flaring and being wasted in the oil fields—enough energy to light up the whole Atlantic Seaboard every year.

Pittsburgh Consolidation Coal Co. is planning to produce gas and gasoline from coal. If its pilot plant works, you can expect a series of 120-million-dollar plants serving all the big cities near the coal areas, producing gasoline at about 9 cents a gallon for about eight months of the year, then switching to high-B.T.U. gas for the cities during the winter months.

Both of these steps will backstop our oil supply and also give us cleaner cities.

More Meat

A new "tailor-made" hog which gives 20 percent more bacon and porkchops, with 20 percent lower feeding costs, has been developed by agricultural scientists. The scientists also have found that, as a result of dusting 45 cents worth of DDT on a group of steers, the steers altogether will add 2000 pounds to their total weight. And now a new powder for dusting cotton (benzene hexachloride) has been developed which, when used in place of the standard calcium arsenate, can increase the fiber yield of some infested cotton areas by as much as 50 percent.

These three developments should produce more meat and also make more land available for meat production.

Aid to Europe

The economies of Western Europe (with some reservations about Italy and Greece) can be reasonably good business risks for U. S. loans. This is the conclusion of officials behind the Marshall plan. Industrial production in Belgium and Holland has almost tripled since their liberation, and in France it has doubled. Where the U. S. has been able to put in equipment, instead of food alone, the results have been good.

This fall, the U. S. will have to decide whether it is smart for us to try to do the job cheaply, putting in the minimum amount of money and running the risk of undercapitalizing European industry, or to make the loans big enough to do the whole job. On the British loan we apparently sent a boy to do a man's job, then snipped off 30 percent of the value of the loan by our rise in prices.

It is getting clearer to many people that if we don't help Europe start operating again, we'll soon be adding 3½ billion dollars to our military budget every year.

Russia vs. U. S.

American industry is now in direct competition with the spreading Russian industrial and political system. This is what our officials and businessmen, recently back from Europe, are saying.

Russia is basing her plans for control of all Europe (and of the United Nations) on the simple assumption that American industry will be forced into a deep recession as early as 1948. Russia believes that American industry controls American foreign policy, and that when the depression comes, the U. S. will pull out of Europe entirely.

Russia is so sure of coming depression in the U. S. that she is doing a number of things now to be in position to grab Europe when we pull out. She is taking away from her own people a huge part of her first bumper wheat crop in eight years, plus a large part of her scant consumer commodity production, and giving them away in trade agreements with her middle-European satellites. Along with the wheat and consumer goods goes a strong propaganda campaign which preaches that the U. S. is about to succumb to depression, will then pull out her troops and aid, leaving Russia as the sole protector of Europe.

Foreign Policy Unity

Government officials and political leaders are discussing the need for a mechanism that will pull together Republicans and Democrats, and also Congress and the President, on important foreign policy decisions.

American efficiency in foreign affairs looked bad when the President struck delays in getting the Greek-Turkish loan through Congress, and also later on when the House Appropriations Committee felt it could veto the decisions of both houses of Congress by holding up the funds indefinitely.

Monopoly in Europe

N.A.M. directors Crawford, Gaylor and Wason have been reporting significant findings abroad. They say that for many years European businessmen indulged in price-fixing and production-limiting cartels (industry's form of feather-bedding). Now, given a choice between privately-owned cartels and socialistically-run industries, the people of Europe don't see much difference. These N.A.M. observers put mass production and actual competition high on their lists for European recovery . . . although the lost years may have also lost that opportunity.

Small Business

Business failures are increasing and the chain stores are again increasing their share of the take. Concentration in manufacturing took a considerable post-war spurt, and there is still enough liquid cash in enough company treasuries to allow for another round of mergers.

Life for small businessmen is tougher as a result of the last session of Congress. The House and Senate put restrictions on RFC credit, cut Anti-Trust and Federal Trade Commission funds, and failed to pass a bill to stop mergers that kill competition. This means that even a little recession will shove out many small businesses.

Housing

Faltering of the housing industry may hinder both our domestic and foreign plans. Building has been counted on to carry a large share of the country's new investment for the next decade. The huge export boom has saved us so far from feeling the effects of the present shortcomings in the housing industry. When the export boom drops (as it will for a while, despite the Marshall plan), we'll begin to feel the housing failure hard.

Inflation

Inflation, to some degree, is still a bogey. There's no serious belief that we are in for a price runaway. It's more a question of "the higher they go, the harder they'll fall."

Steel price rise, with all its by-product effects, adds another dose of upward pressure.

Failure of the Federal Reserve Board and Congress to prevent additional credit inflation will get more attention this fall.

Anti-inflation

Standard Oil of New Jersey has announced that increased oil prices will not produce any more oil, so it doesn't propose to up the prices again. (1¼ billion dollars a year have been added to the nation's oil bill in a little over a year.)

The Aroostook County potato growers in Maine have announced their willingness to have the support price lowered.

AFL and CIO are moving to hold down a few living costs by backing up consumer co-ops. (Consumer co-op business reached nearly 700 million dollars in 1946, and is still on the way up.)

Public Opinion

A recent public opinion poll shows that almost a fifth of the people still think that it is the business leaders who are doing the most good for the country (just behind the clergy). Only a tenth of the people think business leaders are doing the least good for the country, while four-tenths think that labor leaders are doing the least good.

Letters from Readers, pages 47 and 48

The new long skirt, cause of an earthquake in the feminine world, is bringing no less an upheaval in business.

Women are trying to lengthen their old dresses but fashion designers gleefully say it won't work; the long dress must be designed as a long dress. In the end, the experts say, women will have to buy new wardrobes. This is a break for textile mills, which needed a pick-up in demand.

Many stores got caught with heavy inventories of short dresses and took terrific losses before unloading. But now they look forward to the new era with excitement. Long dresses require new stockings in darker shades, wine, green, black and navy. The open-toed shoe will go and heels will be higher. Even earrings will be longer.

What gave the sudden downward impetus to skirts is still a mystery. Most men think a few New York fashion designers made the cold-blooded decision. The designers poohpooh this idea. Women, they say, want to change the skimpy dresses required by the War Production Board's limit on cloth. The tip-off came three years ago, one designer solemnly declares, when women began wearing larger hats and close-to-the-head hair-do's. Big hats require long dresses.

One woman wrote to President Truman asking him to stop the trend because of the heavy expense to the working girl. The Commerce Department answered. History reveals, the Department gravely informed her, that there are three cycles in dress design: the bell, the back fullness (bustle), and the tubular—occurring in orderly rotation on an average of three times a century. The tubular cycle has been in vogue since 1899, seven years longer than any previous one. The Department calmly concluded that we must accept this fashion change in spite of the cost.

Bargain-minded women are forcing the growth of a strong trend in the buying of beauty: they are grabbing $1 to $4 permanent wave kits for home use which contain weaker solutions of the same ingredients used in beauty shop permanents costing up to $50. Sales this year are expected to pass the 12 million home kits of 1946. The result is what seems a permanent wave of rage and anxiety in the beauty shop industry.

That's understandable. There are 120,000 beauty shop owners, and they gross about 350 million dollars annually. The major part comes from permanent waving.

Profits rose after cold waving came in 1939 with discovery of ammonium thioglycolate. Chain beauty shops pay as little as 50 cents for materials used for a $10 permanent and about 75 cents for those used in $20 jobs.

Shop owners see an alarming aggressiveness in the kit men. The Toni Company of St. Paul (bigger than Charmcurl, Crowning Glory, Chic and Portrait) is out to double its last year's sales of five million sets. Its national advertising campaign will cost 3 million dollars.

The National Hairdressers and Cosmetologists Association, Inc. is trying to convince women they can get satisfactory beauty care only in licensed shops. It has also cried *danger*. Cases where women failed to follow directions and got burns, rashes and infections have been amplified.

And where all this will end no *man*, at least, will predict. The one transparent fact is that the professional beauticians have struck hard competition and they will have to comb it out for themselves.

Marriageable farm girls are going to town so fast that many midwestern farmers can't find wives. Sociologists are worried.

Douglas G. Marshall, professor of sociology at the University of Minnesota, reports that in some counties men in their early twenties outnumber girls nearly two to one. The girl shortage is worst in Wisconsin, according to his figures. Next in order comes Minnesota, North Dakota, South Dakota and Iowa.

To keep the girls on the farm, Marshall says, farm life must be made more attractive. This means comfortable homes with modern conveniences and more social contacts.

Stenographers have written to Marshall from many cities asking where they can find husbands. And 39 farmers in South Dakota have asked help in finding wives.

Your Credit Good?

DUN & BRADSTREET KNOWS

ABOUT three-fourths of all business is done on credit. This means that most business is affected one way or another by Dun & Bradstreet, the only world-wide or even nation-wide collector and seller of information on credit.

CREDIT
Man's Confidence in Man

From this unique vantage point the company probably knows more about the functions of credit and how to maintain a good credit rating than any other group—even though D & B never grants a penny of credit itself.

Since 1841, when Dun & Bradstreet was founded, businessmen have been learning what credit ratings are. They are now so rating-conscious that more than 75,000 subscribers shell out from $200 up for access to the D & B listing of some two-and-one-half million names. Though each company's name is accompanied by only terse symbols, the listings fill a book every other month that is the largest in the world to be published regularly.

To keep its reports up to date, Dun & Bradstreet receives and processes nearly 6000 changes a day, including firms leaving and entering the business scene. D & B therefore holds its fingers on the pulse of American business. And it does more than merely count the pulse beat; it diagnoses ills and prescribes remedies, for credit involves every other factor of business—inventories, capital, management, supply and demand, etc.

A few of the things that impress a D & B reporter as he makes his rounds illustrate this: clean windows, good displays, courtesy to customers, fresh goods (or, at least, not dusty old goods), neat employes, tidy premises (as protection against fire), location and completeness of account books.

Reporters also check court records for law suits and learn from suppliers and local bankers how promptly borrowed money has been repaid in the past. Moreover, they trace the merchant back through other business connections he may have had. In short, a man's credit record follows him doggedly.

The most obvious ingredient of a D & B rating is each firm's financial statement, but nearly one-fourth of those interviewed will not go that far in cooperating, usually arguing that they don't need credit. Whenever this happens, D & B turns to secondary sources for information. In either event it comes up with an "estimated financial strength" for the company in question, AA being the top rating and indicating over 1 million dollars.

In addition, each firm gets a "composite credit appraisal" (from A1 down to 4) based mostly on the degree of good management shown by the enterprise. These symbols are only a basis on which the prospective creditor may make his own decision. Whenever the rating shows a borderline status the inquirer can get a full report, which lays out all the factors behind the abbreviation.

The origin of impartial credit reporting is typically American. It grew out of the inability of eastern suppliers to learn anything about the interior merchants to whom they sold goods.

After the Panic of 1837 the supply of hard money was short and suppliers had over-extended their thin lines of credit to traders. The system of carrying letters from local ministers and lawyers had to be

WHITESIDE ON BALANCED BUYING

"If suppliers would convince wholesalers and retailers that inventories must be kept at a balance they could do more than anything else to prevent boom and bust."

improved. A New York silk merchant named Lewis Tappan saw this and in 1841 started the first reservoir of credit information, calling it The Mercantile Agency.

The new enterprise was rooted in American business history. Tappan and his brother founded the New York Journal of Commerce and one of Tappan's supporters was the great merchant, A. T. Stewart, father of the department store system.

The early credit reporting methods were crude. Pioneer reporters rode horseback, buckboards or whatever they could find, sometimes not returning to their offices for a year or two. In addition the firm used many local correspondents, usually lawyers or bank clerks. In fact, it still uses about 30,000 local reporters.

Very early reports embodied the flavor of the times. Around 1850 a scribe reported of one credit seeker that he "drinks two glasses cider brandy, plain, morning and evening—never more; drinks water after each; chews fine cut; never smokes; good teeth generally, has lost a large double tooth on lower jaw, back, second from throat on left side; has a scar an inch long on his left leg knee-pan; cause, cut himself with a hatchet when only three years old . . ."

Four of the company's part-time correspondents became President of the United States—Lincoln, Grant, Cleveland and McKinley. Correspondent Lincoln wrote of a Springfield, Ill., store that there was a rat hole that "needs looking into."

Grant reported that a young businessman had nothing but an office chair, a barrel with a board for a desk, and a fine young wife. Grant concluded that any small bills would be paid.

The Mercantile Agency was run under various names until it became R. G. Dun & Co. Meanwhile a competing company had been formed by John M. Bradstreet. The two vied for 80 years, until 1933, when the depression brought on a merger as Dun & Bradstreet, Inc. Two years before that Arthur D. Whiteside had brought his National Credit Office into the Dun firm, and he was named first president of the big new corporation.

The empire presided over by Whiteside, a white-haired physical bantam but mental heavyweight, is a fast-moving organization with analysts at the top of a staff of more than 8000 people.

Departments have been added to make use of all the by-products of credit information until D & B now ranges wide. It has a special apparel trades division which has to work so fast that most of the volume is handled by telephone, a foreign department which collates information from 50 offices abroad, a research and marketing division and several offices for specialized or more exhaustive reports.

The company also has a collection division which puts D & B prestige behind demands for payment of debts. Thus the name Dun is often used literally.

Out of this wealth of material comes a wealth of sound business advice, particularly on the use of credit. If one thinks of credit as the lubricant for the axles of trade, then D & B wields a huge oil can, knowing where squeaks will come before they are audible. Arthur Whiteside, the chief oiler, bears out another definition of credit: "Man's confidence in man." This phrase, used almost as a trade mark at Dun & Bradstreet, was borrowed from Daniel Webster and checks with the Latin origin of the word "credit": *credo*, meaning "I believe."

Whiteside is a believer but not a gullible one. He is an avowed optimist of broad-gauged political and economic persuasion. Some trade groups view him as an iconoclast because he tells them bluntly when he thinks they are short-sighted. He was one of the "tame capitalists" of the New Deal—a high official of the NRA, an intimate of many Roosevelt

office holders and an important administrator of the war production drive. Whiteside now supports the Committee for Economic Development and admires the more progressive captains of industries such as Fowler McCormick and Henry Ford II.

The main point which Whiteside feels he can never get across to all businessmen is the danger lurking in excessive inventories.

"If suppliers," he says, "would convince wholesalers and retailers that inventories must be kept at a balance they could do more than anything else to prevent boom and bust."

Although there is no set formula for determining when the point of excess is reached, because it varies by company, a rule of thumb has been worked out by Roy A. Foulke, a D & B vice president. According to this formula, there is danger ahead for any manufacturer, wholesaler or jobber whose inventory becomes larger than 75 percent of his net working capital if the latter is above $250,000, or two-thirds of the net working capital if under $250,000 and above $50,000. Retailers' inventories should not exceed 100 percent of their net working capital. But seasonal peaks must be allowed for in some lines.

WHITESIDE tells suppliers that everyone who buys from them should be thought of as their agents; thus every supplier should know the credit position of his buyers, his agents.

But he also feels that credit has been used too often to restrict sales, rather than enlarge the volume. "We haven't begun to exhaust the possibilities in the use of credit," he says. Dun & Bradstreet itself has been criticized for being too pessimistic in its ratings, largely because reporters don't want to stick their necks too far out. However, the company is shifting its emphasis toward more help for the person reported on. Ratings will consider even more than before the capacity of each business to earn, rather than what each might bring in a forced sale.

But wherever there is a forced sale, or even a profitable liquidation, D & B is at the scene. This puts officials of the company in a position to have many "do's and don'ts" for businessmen, based on obituary notices of others. Incidentally, Whiteside thinks that the liberality of the American bankruptcy laws accounts for much of the progress of this country. Many new and thriving enterprises are run by men who, under harsher laws, would be indelibly tagged as failures.

A FEW THINGS THE D & B REPORTER NOTICES

Clean windows
Good displays
Courtesy to customers
Fresh goods
Neat employes
Tidy premises
Completeness of books

The first three years are the hardest, according to D & B figures. The man who keeps going 10 years is on solid ground.

One of the chief lessons of D & B case histories sounds simple but is far too often ignored: Don't wait until distressed to strengthen your credit position. When a businessman's liquidity is weakened he should seek credit willingly.

To use a specific example, a distributor who customarily pays for his goods promptly enough to get a discount for cash will raise a red flag on his credit standing if he suddenly fails to take advantage of cash discounts. Dun & Bradstreet—and ultimately his suppliers—will want to know why. In some cases, this means that it is worth borrowing money to maintain a record of prompt payment.

To illustrate the definite value of being a going concern, as well as the weakness of judging a company merely by its bookkeeping value, a D & B official tells the story of a Virginia businessman whose son was helping in the office between college terms. Finally, the boy told his father that he had studied the books and that the company was on the rocks.

"The books may show that we're on the rocks," replied the father, "but nothing about them has changed for 15 years and during that time I've made a pretty good living and sent you to school."

FULLER BRUSH KNOCKS ON THE

THE faithful foot of the Fuller Brush Man will appear in some unfamiliar doors this year in walking up a 25-million-dollar record business.

The main concentration in happy Fuller Park at Hartford, Conn., is still toward perpetuating the famous cry, "Mama, the brush man's here." But there is a rising drive to sell Fullergript brushes to clean the machines of industry and everything they make. Industry will increasingly learn that Fuller makes brushes that can de-fuzz a peach, polish a piece of rough leather or scrub an entire passenger train in one quick operation. Forty salesmen will be out advising on about two-score other industrial uses for brushes.

Fuller's Industrial Division sales will run about 5 million dollars this year, 2 million over last year. Until this year, industrial sales weren't pressed so hard because some in the company, including the big boss, leaned sentimentally on the household lines which brought riches and fame from the $375 with which Alfred C. Fuller started his business in 1906. But now the attitude has changed and they're splashing full-page color ads on industrial brushes.

The generally young and aggressive Industrial Division people hope that someday their sales will reach 50 percent of "households." Then indeed will Fuller be biting hard into that potential 150-million-dollar United States brush market.

The first impression anyone gets after passing the white marble statue of a well-bristled Caledonian boar in the Fuller Building is that the company is swinging hard to meet an enormous demand. In the household line, certainly, Fuller can sell everything he can make. No resistance is expected before the end of this year. Things are booming: unit volume is up 60 percent over pre-war years; dollar volume is 100 percent up, mainly by sales of new and higher-priced items.

And pounding the streets are some 6000 salesmen-dealers who buy Fuller goods under one-year contracts. These are the men who inspired the cartoons with feet and knees stuck in doors. Fuller, his own first salesman, denies that such tactics are necessary. Fuller is a tall, rather heavy, and serious-mannered man who laughs infrequently. He seems the antithesis of a salesman or even of a driving personality. But he has been the cause of more brushed heads and well-swept floors than any man alive.

Fuller has some fixed ideas about business.

First, he has a motto which hangs over the marble Caledonian boar: "With equal opportunity to all and due consideration for each person involved in every transaction, a business must succeed."

As the most famous door-to-door salesman, he believes that nobody has the right to use that sales method unless he has something to demonstrate, some bit of information to leave about a *needed* product. He believes also that the Fuller Brush Man ought to have a clear field with such a product, and he forbids sale of his goods in stores. Nobody gets a Fuller brush except from the Fuller Brush Man.

FULLER feels deeply that his salesman's other great advantage is quality. His low-pitched voice grows eloquent over the long-term worth of quality products. There is no compromise: he has pulled back on output of brooms until he could get good wood for the handles.

Fuller reiterates that quality, and a couple of other things, brought him success. These other things were a few four-line ads he ran in national magazines a

few years after opening business, and a free sample of something as a door-opener. He didn't have to advertise after that because orders avalanched on him. But he never abandoned the give-away.

His shop makes 1200 handy brush give-aways an hour in 24-hour operation. These cost the salesmen about 2 cents each; the salesmen have estimated that each one is worth $2 to them. They and the give-away pocket combs, are the actual Fuller door-openers. Presses in the plant print 3 million attractive color-plate folders a month for door-step use. These also are a polite approach at the door.

In making full use of this approach, Fuller says a main consideration is to find the right salesmen and then look after them. He looked after his dwindling, product-starved force in wartime by taking on a line of shampoos, shaving lotions and the like. It proved to be a good repeater line in a field where most items last from many months to many years. So Fuller will keep it, since it's related to his established lines anyhow.

The company holds no sales training courses, leaves that to the 400 field managers in the belief that training on the foot in the field under supervision is best. Fuller dislikes overturn in sales force because there is sales magic in an old familiar face at the door. And he thinks the good executive must know the housewife. Consequently, Fuller men on upper levels often take a kit, get into the field and ring some bells.

From the field, as well as from a technical research department, come ideas for new items. Often the general public contribute ideas, but these are generally useless. The company will make specially designed items if they make sense and the order is sufficient. It won't make just anything, however. For example: a Connecticut man invented a tunnel-like contraption for washing a dog. It was adjustable to any size dog and would have contained a series of brushes to revolve and clean the animal after it was shoved in the front door. Another man sent in the fur of an Australian 'possum, requesting a brush. Another wanted a brush made of oxen's eyebrows.

But one suggested a brush that would pick up dust easily and the Fuller engineers made it, of nylon, which attracts dust. And then they turned to their own ingenuity and made a brush for cleaning open-toed shoes.

The big thing at Fuller Park these days, though, is that The Man is back in force on the streets of 48 states. He will show housewives newly-designed complexion brushes, a flesh brush to "massage, soothe and invigorate," insecticides, spot removers and brooms punched for hanging on the wall so the bristles won't deteriorate standing on the floor. He will make some to-do about the new spiral bristle comb which won't straighten out a permanent wave but does agitate the oil to help give lustre to the hair. He will be the familiar man with familiar things brought up-to-date in designing.

The more unfamiliar man—the industrial salesman—will knock on the factory door. He will say in effect to the bosses: "I can show you where Fullergript will save you money." He will explain that Fullergript is a continuous brush strip—a solid mass of brush material fixed in a strip of metal. With this steel backbone, Fullergript brush strips can be semi-

spiraled, radially spiraled or made to fit any shape or type of core.

The company claims the application of the Fullergript strip in industry is unlimited. It can be made to fit wherever a brush is required. It will, according to the claims, replace 60 percent of the handwork in the cleaning and polishing of apples. Refillable cores of five to eight-inch-long fibers in railroad car washing equipment remove road film and dirt. Trucks, street cars and buses are also washed in a patented device. The sides and windows of vehicles 55 feet long are cleaned in less than a minute.

Fuller engineers have developed designs for dozens of industries, including leather tanneries, steel strip mills, woolen and cotton mills, food packers and processors, confectioners, bakers and dairies. Prior to Fullergript development most industrial brush material was hand-set with cement or fastened by wire in cylindrical cores or wood blocks. Fullergript, the salesmen will argue, permits brush material of all kinds, sizes and shapes to be fitted easily into any machine in which a brush is an integral part.

Thus a new type of Fuller salesman is on the road. Glibness doesn't help him at all. But a lot of practical engineering knowledge helps.

Both the salesmen and the workmen in the plant seem to cherish a long-term fondness for Fuller. He knows nearly all of the 800 men and women there by name and they all feel free to talk to him. Many of them have worked for him 10, 20 or 30 years.

His shop is unionized and the company opens its books for union examination. Fuller likes to have the personnel on whatever level to know that the company is succeeding.

"People do better when they are in a thriving company," he says. "The greatest factor in any enterprise is to get the right people and then keep their interest constantly stimulated."

In 1940 Fuller went across the street from his factory, bought 15 acres and made a golf course and recreation ground with clubhouse for his employes. When some of the workers grew frightened over the Taft-Hartley Act, they were told "it isn't going to make any difference here."

The company has mellowed, is sure of itself, of its personnel and of its predominant place in the brush field. It has even reached the point where it can view with equanimity the jibes of jokesters.

Just recently a letter came with the printed advertisement on the envelope: "Throw away your shaving brush; Use Barbasol." It was a little pointed, even a little shocking. But with the great machines thundering business on the floors below, Fuller just brushed it off.

A Sad Farewell to Maple Syrup

Pure maple syrup may soon disappear from its traditional place on the American breakfast table. Thirty years ago New England farmers produced 20 times as much sugar and syrup as they do today. But it was hard work, all done by hand, and gradually the maple groves, or "sugar bushes," have been neglected for other crops. During the war many farmers sold their trees for lumber at high prices. A craze for maple-flavored tobacco has cut into the supply, and a substantial amount of every year's crop goes up in pipe smoke.

Ten states from New England to Wisconsin and nearby parts of Canada, are the only places in the world where maple trees can be tapped for sugar sap. It's as American as corn on the cob. Yet there are probably 75 million Americans today who have never eaten a stack of wheats dripping with real unadulterated maple syrup. And never will.

Nowhere on the industrial front is the battle for scarce materials more violent than in steel. This article deals with only one steel-needy group, the stampers. But through the story of their fight to survive looms the industry's most challenging question: what is our reasonable, economic steel-making capacity? should it expand? if it does, what happens when demand levels off? Future articles in this magazine will go further into this basic problem.

MR. SMITH vs. THE STEEL MAKERS

FULLY 95 percent of all U. S. manufacturers must have steel to keep going, yet today only a fraction of them are getting the steel they need. The shortage hits particularly hard at small users of sheet and strip. Some are hobbling along, others have folded. A few, in their desperation to survive, are fighting back.

Among the fighters are the steel stampers. They're asking the steel makers, who don't like to be asked, some mighty embarrassing questions about scarcities, the gray market, favoritism, and the basic issue of whether our current steel-making capacity is big enough.

Spearhead of the questioners is Tom J. Smith Jr., of Cleveland, head of the Pressed Metal Institute, the stampers' trade association. A heavy-browed, cigar-chomping man whose resemblance to John L. Lewis is both physical and forensic, Smith is a self-styled "tough old so-and-so." He may not have authored the phrase, "Is this a private fight, or can anyone get in?" but at 61 he is probably its closest walking embodiment.

Even more important to the stampers is the fact that Smith himself is not a stamper. A onetime master plumber and ace salesman, he took on his $10,000-a-year job through past experience as a professional organizer of trade groups. Lacking a personal beef, he can bellow for all Institute members without fear of reprisal. "I bear the onus," Smith explains, his Scotch-Irish blood churning merrily. "I don't mind bricks—I love 'em."

Smith's chief weapon against the steel makers has been publicity, tireless reams of it, couched in gaudy, sometimes scriptural polysyllables. His words to date have had these impressive effects:

► Goaded steel mills into pressuring Institute members to shut Smith up or face cuts in what little steel supply they now get.

► Furnished ammunition for a Federal Trade Commission inquiry into the production and distribution policies and practices of basic producers. Example: the way in which they channel steel to their own subsidiaries rather than to competing makers of steel products.

► Helped keep the Senate Small Business Committee's steel investigating subcommittee on its toes.

The stampers' cry for steel is all the lustier because they feel they're being held back from bigger and better development. The process of stamping steel, now a half-billion-dollar industry, has come into its own relatively recently—in the past few

decades. But in that period the use of dies to press end-products and parts out of sheet and strip steel has been accelerated and much improved. Dies can be used again and again, often interchangeably on a single mechanical or hydraulic press. This economical mass-production technique has important advantages over casting, where a mold is used once and discarded. A bathtub of pressed steel takes $7 worth of steel and weighs 125 pounds; a cast-iron tub uses $35 worth of metal, weighs 350 pounds.

By World War II stampers were turning out much more than plumbing fixtures. Output included auto parts (the whole top of a car is usually a single stamping), refrigerators, lawn mowers, washing machines, sinks, awnings, waste baskets, file cabinets, and many other products and components. Then Pearl Harbor clamped down on the production of many consumer items.

To help cope with this crisis the Pressed Metal Institute hauled Tom Smith out of the West Virginia home to which he had retired in 1940. Smith laid siege to Washington. The value of stamping, he tartly recalls, had not been "fully disseminated" among ordnance officials. Soon stampers were mass-producing guns, cartridges and other materiel. "Everything was lovely," Smith muses. "The WPB allocated steel, and the mills complied."

When WPB controls went off, the mills promised to do their bit for equitable distribution by allocating steel to customers on the basis of their pre-war orders. This was an instant blow to stampers who had sprung up during the war and had no "historical position" with the mills. It soon became tough for older stampers too, for many mills dropped all pretense of allocation and began to favor either their own subsidiaries or larger customers—the closer the better, to keep down freight-absorption costs.

Comparing notes, the stampers fixed on three main gripes:

► They were largely out of luck in getting steel unless they happened to be making component parts for big steel-products companies who could intercede with the mills.

Tom Smith

► Even when they got steel, they had trouble getting the kind they most used—hot-rolled, pickled and oiled sheet and strip—a relatively cheap, low-carbon steel. The mills preferred to make cold-rolled steel, for which they could get $20 a ton more.

► Yet, amid such scarcity, stampers were being flooded by obscure gray-market brokers with offerings of spot and future deliveries at $250 and $280 a ton, as compared with the mills' list price of $60 to $80 a ton.

This was the cue for Tom Smith's campaign. Letting his picturesque, plain-spoken prose fall where it may, he unleashed a barrage of bulletins ("shall leave them to the Smithsonian when I pass on"). They were spectacularly titled—"The Iceman Cometh" ("mercenary producers, distributors, jobbers and retailers will likely have their hateful avarices deep frozen"), "A Menace," "Operations Ingot," "To Hell with All 'Papa-Knows-Best Propaganda'." Copies went to Institute members, the press, the Federal Trade Commission and the Senate investigators.

The American Iron and Steel Institute, spokesmen for the mills, got them too—gratis and uninvited. For Smith's main target was the men he loves to call "our bemused steelmasters," and his prime objective was to tell them: "This is dirt on your own lawn, and there's no reason why WE should clean it up."

He made it plain that such dirt included not only the immediate problems of scarcity, but the competition which mill subsidiaries were giving independent steel-products makers, and the squeeze by which stampers "bartered" their scrap for ingots valued well above a reasonable price.

Although he did not charge the mills with a hand in the gray market, he refuted their allegation that that market was "inconsequential" by getting the Pressed Metal Institute members to send in their own records on the subject. These records showed that gray-market offerings came to 1 million tons.

Smith tangled with a vice president of one of the major steel companies on the question of the gray market. The official contended that gray-market offerings did not necessarily mean deliveries, and, further, that there was little the mills could do about gray-market practitioners. An acrimonious exchange of letters ended with Smith warning that "intimidation is the last resort of a bully." Smith notes gleefully that the official was not re-elected at the next company meeting.

Another time Smith ran an indignation meeting of Institute members. He invited representatives of the major mills to explain their viewpoint. Of the six men asked, only the American Rolling Mill Company accepted. "Strange," says Smith, "that five prominent men in the steel industry should all have other engagements on that one particular day."

BEFORE the Senate steel investigators in Washington, the stampers' champion testified at length on what he called "the slaughter of the innocents." Smith hopes the Senate committeemen will recommend legislation whereby the mills will be stripped of their subsidiaries which compete with independent steel-products makers.

Should the committee not do its job, Smith says the Republicans will have as much chance in the next election as they would "chasing a tissue-paper rabbit down the avenues of hell." There are, he points out, more small businessmen than large in the U. S.

For the steel makers he has some specially ominous words. He has no love for government bureaucracy, but thinks that unless the mills mend their ways they may have to be nationalized. "Fifteen years ago in England that sounded far-fetched, and look at them now."

For all his loud and often deliberately bombastic language, Smith is a shrewd operator who is under no illusion that words alone will increase the supply of steel or eradicate the other evils of the current situation. Like others, he recognizes the question of steel capacity as the nub of the issue, and he sees with satisfaction that the lines are being drawn for a fight to enlarge that capacity.

The steel makers' traditional argument —and one to which they still adhere—has been that capacity should not be figured on the basis of how much steel is used during a period of "abnormally" high industrial activity, as they claim today is. They say that the current annual capacity of 91 million tons is therefore more than ample. In testimony before the Senate Small Business Committee economists, labor leaders and users of steel have argued that capacity must be increased 15 to 20 million tons to take care of what they predict is a permanently increased demand.

Until this fundamental issue is resolved, the value of Smith's role is as a gadfly.

One admiring government official phrases it: "Nobody likes to have a bumble bee buzzing around his backside. Tom Smith is not making a losing fight, because in this country we win fights by airing abuses as the first step toward correction."

Smith shows no sign of wanting to let up in his drive to air those abuses. Steel magnates have learned to wince whenever he yanks out his false teeth and stuffs them in his pocket. Smith claims he can't swear hard enough with "those damn things" floating around in his mouth, and swearing is one way of keeping his antagonists on their toes.

It's highly probable that when the history of the current steel crisis is written, fighting Tom Smith will provide one of its most memorable footnotes.

THE NEW LABOR LAW: *Questions and Answers*

YOU can put this under the glass on your desk or paste it up somewhere. These are a few questions and answers about what the new Labor and Management Relations (Taft-Hartley) Act of 1947 does and doesn't do for employers and employes.

Many of the law's provisions will be clarified by executive regulations and interpreted by court decisions. These are broad questions and broad answers, but they may serve as useful guides until your problems become a scrap among lawyers.

Q ***How are present contracts affected?***

A Agreements in effect at the time the law was passed are to run until the contracts expire, or until the parties arrange for renewal.

Q ***What is the procedure if either side wants to terminate or modify a contract?***

A The party desiring the termination or change, either employer or union, must give a written notice of 60 days to the other party—60 days before the expiration date or 60 days before the time it is proposed to make the change. An offer must be made to meet with the other party to negotiate. If within 30 days after filing the first notice an agreement has not been reached, both parties must notify the Federal Mediation and Conciliation Service and the state or territorial agency which may exist to mediate and conciliate disputes. Identical reports can be sent to both. Meanwhile the existing contract must be maintained, without strike or lockout, for 60 days or until the contract expires, whichever is later.

Q ***What is the procedure on strikes?***

A In ordinary strikes the union must notify the new Federal Mediation and Conciliation Service that there is a dispute. If no agreement has been reached at the end of 60 days, the union can walk out. But if the dispute involves a "national emergency"—coal, communications, etc.—the President can appoint a special fact-finding board and may direct the Attorney General to petition a Federal Court for an injunction. If there is no settlement in 60 days, the employes, within another 15 days, must vote by secret ballot whether to take or reject the employer's last offer. The result must be certified within five days—making possible an 80-day cooling-off period. When the results of the vote—regardless of what they are—are certified by the board to the Attorney General, he must petition the Court to lift the injunction. The law then merely says the President shall make a report to Congress, with recommendations.

Q ***What can the employer do if an employe goes on strike during the "cooling-off" period?***

A The employe loses the protection of the Wagner Act and he may be dismissed.

Q ***Can an employer get an injunction if he believes a strike to be illegal?***

A No.

Q ***Can unions be sued for damages?***

A Employers may sue for *losses* suffered from illegal jurisdictional or sympathy strikes, from secondary boycotts, from strikes in violation of a contract, from mass picketing or violence, or from slowdowns instigated by a union.

Q ***Can individual union members be sued for damages?***

A No.

Q ***What rights are given employers as to discussing labor-management problems with employes?***

A Employers may freely express their views as long as they make no threats or promise no special benefits.

Q ***What about the closed shop, the union shop, and maintenance of membership?***

A The closed shop is banned, but closed shop contracts now in effect last until the termination date, then die automatically. The union shop is allowed—*if* the employes want it. First, 30 percent of them must petition for it. Then a majority of *all* the workers in the unit must approve it by secret ballot before an employer can make such an agreement. (However, the act does *not* supersede state laws banning the union shop.) Again, with maintenance of membership, a majority of *all* the employes must favor it.

Q ***What is the status of the check-off?***

A The compulsory check-off is illegal. But employers may voluntarily make agreements with unions covering workers who authorize deduction of union dues from their pay.

Q ***Can the individual employe present a grievance to the employer?***

A Any employe may take a grievance directly to the employer without consulting the union. The settlement, however, must not be contrary to the contract and a union representative must be given an opportunity to be present when the adjustment is made.

Q ***What about the unionization of supervisors and plant guards?***

A Supervisors or foremen can join unions, but they have no protection under the law. The employer does not have to recognize such unions, but he may. If supervisors join production unions, employers can make them resign from the union or lose their jobs. Plant guards may form bargaining units if they are unionized independently, but not join unions of production workers.

Q ***What changes were made as to unfair labor practices?***

A Generally, the law attempts to place more responsibility on the unions. As far as employers are concerned, it is almost the same as the Wagner Act. A noteworthy change: there is a statute of limitations—six months—on unfair labor practices. Charges by either employer or union must be filed with NLRB within six months of the time the alleged infraction occurred. On the union side there are a number of stiff restrictions. Example: under union shop or maintenance of membership agreements, unions can't force the discharge of an employe for any reason other than non-payment of dues.

Q ***What can be done if a union commits an unfair labor practice?***

A Employers now have the right to make a complaint to NLRB, just as unions have had in the past.

Q ***What is the status of the welfare fund?***

A The important point is that the employer can't contribute to a welfare fund unless it is jointly administered by management and the union, with a neutral party to settle disputes.

Q ***Can an employer help a so-called "company union" by offering financial support?***

A No. An employer may not help *any* union in this fashion.

Q ***What are the other obligations of unions as to their internal affairs?***

A If they want to utilize the machinery of the board, they must file with the Secretary of Labor detailed information on their internal operations, including receipts and disbursements; they must give financial reports annually to all members of the union; similar reports must be filed by any national or international organization with which the union is affiliated.

INDUSTRY GOES TO THE FAIR

where its products are displayed for 60 million customers

WHEN the familiar, welcome noises and smells spread off from some 2200 U.S. state and county fairs this harvest autumn, American industry will show its wares direct to crowds expected to exceed the 60 million who went to the fair last year. Fair executives expect a sell-out of commercial display space.

Business is learning, simply, that fairs are more than shelves for prize pumpkins and places for throwing hoops at plaster dolls. Fairs themselves are Big Business and they offer, besides a fine tradition, a marvelous sales floor. At the big Iowa State Fair at Des Moines, a million dollars worth of farm machinery is sold in a week each fall. And beyond strict cash results lies a promotion value which means future sales.

R. H. DeMott, vice president of SKF Industries, makers of ball bearings, etc., says of fair exhibits: " . . . . We know that the trade show is the epitome of the personal touch. For the trade show delivers the product in person. And perhaps just as important, the trade show delivers *you* in person, enables you to meet the men with whom you deal or would like to deal and under more friendly, relaxed circumstances than are possible in any other business association."

To this testimonial, Frank H. Kingman, secretary of the International Association of Fairs and Expositions, puts a postscript: "We are in for another banner year. Merchants and manufacturers are making a rush to get commercial space."

And of prospects generally Kingman says: receipts from outside gates and grandstands should equal or exceed those of 1946; receipts from concessions should show no drop; receipts from commercial space will depend only upon the amount of space available, and there is every reason to believe that space will show an increase. This is mainly because of the growing awareness of its worth and because manufacturers have more to show now.

Manufacturers, in any case, have enormous range of selection of a fair showroom. No part of the country is without a fair. The Texas State Fair at Dallas (October 4-19) is the largest and normally attracts one-and-a-half million visitors. Optimistic outlooks come from Kansas with its 100 fairs, from Ohio's 98, Minnesota's 98, Illinois's 86, Iowa's 85, and, generally, from all over the country.

Fair executives don't think it's hard to explain. People just naturally like fairs, they associate fairs with the "old times," and they are now rather hungry for normalcy.

Such devoted fairmen as Frank Kingman, who runs the Brockton, Mass., Fair keep a constant critical eye on the trends. They love to talk more about the *meaning* of fairs. They see the greatest meaning to the country's young people as individuals.

THEY talk of such people as Brody L. Koon of Texas. He was the 1946 "Star Farmer" of the Future Farmers of America southern region, one of the mainstay organizations behind the fairs. Seven years ago Koon's father gave him a calf and this started a dairy herd now numbering 55 registered Jerseys. Profits en-

abled him to buy 255 acres last year. Such individuals show off their stock in the brisk autumns and are encouraged.

Fairs, Kingman and others say, are educational or they are nothing. They should, thus, be institutions for encouragement and help. They should be essentially, too, the show-window for the community. For instance, the good western fair might concentrate on mineral wealth, a midwestern fair on agricultural abundance, and an eastern fair on industrial progress.

Anything else, by standards of the devoted fairmen, is fluff. It is necessary, but still fluff. This goes for the midway and the races, the whisker-growing contest and the fiddlers' competition.

Nobody but the concessionnaires and exhibitors makes money from the almost universally profitable American fair. Non-profit organizations with plant values of some 500 million dollars, the fairs plough profit back into better fairs. Nobody knows the aggregate sum made each year. But attendances are revealing. A half-dozen stand in the 450,000 to 750,000 class, a score attract 250,000 to 450,000, about 100 are in the 100,000 to 250,000 class, while 2000 are in the 100,000 and under group.

Twenty-three states give financial aid to fairs. California leads with some 4 million dollars annually. Illinois and New York rank next in contributions and always this money goes mainly for prizes for agricultural products and boys' and girls' work. The states, therefore, believe that fairs are educational.

Polls have demonstrated that the farmer, at least, agrees with this view, and the farmer is the fair's backbone. He will pause to ogle the writhing dancing girls on the platforms, but his interest is bracketed in this order: (1) livestock-farm exhibits; (2) farm machinery exhibits; (3) horse racing; (4) automobile racing; and (5) carnivals and shows. This preference for the exhibits means greater opportunity for the commercial exhibitor.

The trend is toward bigger, more elaborate and more instructive displays. Behind the trend are the fair association and many individual fair officials along with 4-H clubs and other agricultural societies.

But no one believes that the American fair, whether county or state, will change its good-time face for years to come, if ever. It may not even be desirable. For the midway, like the prize pumpkin, fiddlers' contests and weddings in front of the grandstand, is certainly a part of the tradition.

THE feeling among responsible fair officials today is:

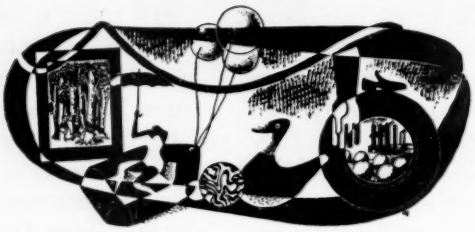
► Fairs will prosper anywhere in America so long as they keep their mission in mind. The mission is to instruct people in the opportunities in their communities and much of the emphasis should be placed on young people.

► There would be an enormous building spree if supplies were obtainable. One authority thinks it would touch a billion dollars. Plants went into disrepair during the war; localities without plants envisage a fair boom and want to prepare for it.

► Traditionally, there has been no competition between the county and state fairs and there should never be. Each is an encouragement to the other. Farmers who win prizes on their tobacco or cattle or corn in the county shows are encouraged to take them to the state fair.

► And one thing the *greater* fairs confront is having their own fame overshadow the local industries for which they are the show window. The famous fair at Brockton is a case in point. A Brocktonian found in the Northwest that people he talked with had heard of the Brockton Fair but hadn't heard of Brockton's great industry, shoes.

These are factors that all good fairmen watch. They know a fair can't build a community or a county or a state. But it can stimulate the growth of communities, enterprises and, above all, individuals.



RUBBER: *PROSPECTS & PRICES*

FOR those who manufacture, deal in or merely use rubber products, and that means nearly everybody, this prospect seems solid:

Prices of rubber goods, already down to pre-war levels, probably won't go down much more in the foreseeable future. But they aren't likely to take any sudden jump either.

Costs and prices in the domestic rubber industry may now be held stable in a way they never were before, because the reins of the industry are now firmly in American hands. Foreign rubber combines can no longer compel, through control of raw rubber, a sudden price rise in American rubber diapers, tires, galoshes, ice-bags, shower mats—or any other rubber product.

Synthetic rubber, a big national bargain we got out of World War II, has eliminated the old foreign control bogie of the U. S. rubber industry.

Synthetic cost this country three-quarters of a billion dollars to develop when foreign raw rubber supplies were shut off by war. But mainly as a result of synthetic, our rubber prospects now add up to practically an ideal formula for a capitalistic economy: moderate, stable prices; expanding production and consumption, and a plentiful supply of raw materials.

This represents a terrific reversal of rubber's old status in this country—an always uneasy industry subject to violent changes in the flow of raw materials controlled by monopolies abroad. Price changes in raw rubber were once so radical under foreign control that between 1925 and 1932 rubber was as high as $1.23 a pound and as low as 2⅝ cents.

The relation of synthetic and natural rubber prices has not yet been stabilized. But today you can buy a big kitchen sink stopper for 10 cents—just what it cost before the war. Overshoes for adults cost from $1.50 to $2 again. Hot water bottles at pre-war prices of 75 cents and $1 for first-line goods carry guarantees against imperfections. Sears Roebuck sells a quality tire for Ford or Chevrolet at $14.11. Many drivers report 40,000 miles of service—a cheap ride.

Mixing natural with synthetic rubber, U. S. industry is making some 30,000 items nearly equal to pure rubber in quality and durability.

Under a law expiring next March, the government compels manufacturers to use a large percentage of synthetic in many products. In some of the most highly specialized medical and industrial articles—a few surgical, dental and laboratory products, for example—the regulations permit the use of 100 percent natural rubber. But in oil and fuel hose, flame-resistant tubing and various types of power belting, special synthetics far surpassing rubber have been developed.

TO foreign rubber growers, notably the British, Dutch and French, U. S. synthetic may eventually mean a market shrinkage, but not a collapse.

In fact, the main objection of rubber growers to what they call our "partial embargo" on raw rubber is not based on volume but on price. They want stabi-

lized prices based on prevailing values. They argue that while the raw rubber price now is only slightly above pre-war levels, they must pay from two to three times pre-war prices for what they buy from us—lard, cotton, wheat, tobacco, etc. This, they say, will wreck *their* economy.

Certainly, the raw rubber sales volume here will not drop off immediately. This year, for example, the government and private buyers who were permitted to enter the market last April 1, will take about 700,000 long tons of natural rubber. U. S. purchases have never run above 650,000 tons a year, except for the war pressure period from April 1940 until the Japs overran the Far East. The rest of the world probably will buy another 500,000 tons this year, bringing world natural rubber sales for the year to approximately 1,200,000 tons.

Rubber production has come back much faster than was expected, but the estimated 1947 world purchases will eat up every pound of natural rubber harvested.

Overproduction is in sight for 1948 if the growers equal their 1941 record tapping of 1½ million tons—which they probably won't. This government's experts do not expect the margin between foreign rubber tapped and foreign rubber sold to be disastrous. Neither economists nor rubber manufacturers will guess just how much increased mechanization and expanded auto building will increase world rubber consumption in coming years, but they don't doubt steady expansion.

The market for premium rubbers—crepe and latex—is growing so fast that not even the Rubber Manufacturers' Association will estimate its needs. The Commerce Department reports the 1947 latex demand at 60,000 tons—nearly three times the 1940 need.

Almost all of the new railroad luxury cars have foam rubber cushioning. Auto makers are using latex foam for upholstery—no help to the cotton and horsehair people, incidentally.

Whatever happens to natural rubber, the American synthetic industry is here to stay. Government policy is shaping up very slowly, to be sure. But one solid foundation stone has been laid. In the executive branches of government, and especially in army and navy defense planning strata, a basic policy has been determined: the things necessary to maintain a synthetic rubber producing industry on an operating and expandable basis will be done.

TODAY the American synthetic plant is almost wholly owned by the government. It could turn out 600,000 tons of synthetic this year, if necessary.

The 80th Congress, while pondering long-run policy, wrote its own short-term insurance against collapse of synthetic buying and consequent plant shutdown. It extended government control of rubber products formulae—that is, the mixing of synthetic and natural rubber—until next March 31.

Since then government agencies have been working together to determine long-range policy. Hearings are slated this fall on their recommendations, which probably will specify that one-third of total U. S. rubber consumption be synthetic.

What kind of bill finally will be enacted is not certain now, but there is no longer any doubt that Congress will enact legislation to give permanence to the synthetic rubber industry. The methods for assuring permanence and the size of the minimum plant facilities are not yet decided. Unless all the thinking up to now is thrown overboard, one of three alternatives will be adopted.

► Regulation of the amount of synthetic rubber used in rubber products.

► An incentive subsidy plan under which the government would provide a price refund bonus to help U. S. synthetic meet world natural rubber prices.

► A combination of both schemes.

The possibility of destructive price-cutting in natural rubber shows the necessity for government help to insure per-

manent survival of the synthetic rubber industry. The day may come when we can produce synthetic which is better and cheaper than natural rubber. But military security can't wait. This country at last has achieved a great measure of rubber security, which it cannot afford to lose under any conditions. To keep it, government help or government control, and likely both, seem inevitable.

The U. S. rubber industry agrees that synthetic rubber is a national security asset that must be protected. A majority of the industry seems to favor compulsory use of some synthetic in rubber products. But the industry is not united on the amount to be used. Many members of it favor a much lower percentage than the Army-Navy Munitions Board wants. Some feel that there should be *no* compulsory use of synthetic after next March 31.

This group argues that compulsory use diminishes incentive to develop better synthetic; that under government regulation the consumer would pay more for rubber products; that another government agency would probably be set up to administer it; and that government regulation is against this country's free-trade policy expressed at Geneva.

Some of the industry, possibly a majority, favor a national stockpile of 800,000 to 1 million tons of natural rubber, to be built up by the government. They advocate this as a security backlog. But it would also act as a stabilizer on natural rubber prices.

U. S. industry and government experts see a downward trend in natural rubber prices as production marches upward toward that 1941 record tapping of 1½ million tons. But because of higher U. S. labor costs and other factors, this downward trend is not likely to mean much lower prices for rubber products in the near future.

Government rubber experts feel sure there is little danger of natural rubber going much below 10 cents a pound. Such a drop, they conclude, would drive some of the big rubber estates to shut down or to specialize in premium rubber.

This specializing in premium rubber, U. S. rubber officials think, offers the high-cost plantations at once their only hope for survival and a crack at the rich American latex and crepe rubber market. Crepe and latex sell at about 10 cents a pound above run-of-mill rubber.

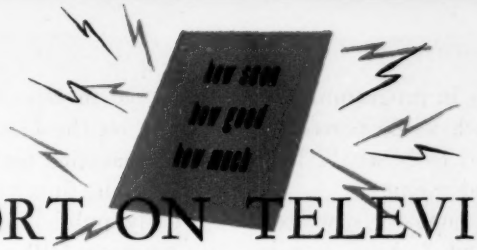
Once policy on synthetic is finally written into law, the government hopes to turn the synthetic industry over to private ownership. To keep it healthy and expandable, army-navy experts have estimated that no less than 333,000 tons of all synthetic must be produced annually.

This ante may be raised or lowered before a permanent rubber law is finally written. But the uneasy currents of world power politics bar any certainty of a future constant supply of rubber—or any other raw material—outside this country. This flaw in security is magnified by the likelihood that war, if it comes at all, may begin with a surprise onslaught, without warning.

The satisfying factor in all these considerations would lie, therefore, in the fact that in a real war emergency the U. S. synthetic industry alone could almost carry the burden of rubber needs.

Going full blast, the government's 56 synthetic plants can produce at the rate of better than 1 million tons a year. During the war the U. S. learned the hard way that most essential items could be made with an average of only 13 percent natural rubber if it were really necessary. And the U. S. will probably have more than 500,000 tons of natural rubber stockpiled at the end of this year.

To the civilian this means some protection against sudden peacetime shortages and leaping prices. With no foreign cartels in control of raw materials, the manufacturer can plan his production soundly and the consumer can buy at steadier prices in the moment of need.



REPORT ON TELEVISION

YOU'VE been hearing and reading a lot about television, one of America's latest and most touted forms of living-room entertainment. If you haven't already invested in a television receiver, you are probably wondering whether to take the plunge.

Here is a report on what you can get for your money—a facts-and-figures analysis of television prospects which may help you make that decision.

Eight companies are now making television receivers: RCA (which turns out more than 75 percent of total current production), Philco, Du Mont, General Electric, Viewtone, Crosley, Farnsworth and U.S. Television Corp. At least five others will start production this fall.

Total industry output, about 12,000 sets a month in June, will be almost tripled by the end of the year. Only about 80,000 sets are in use today, but demand is so heavy that close to a million homes will have television by this time next year.

Prices range from high to very high. At the top is a sleek Du Mont television-radio-phonograph combination at $2565. At the bottom is an RCA table model for television alone which has a 6½ by 8½ inch screen and sells for $250 plus $45 for installation and a year's service. In-between models average more than $500, but Philco, for one, has introduced a receiver with automatic tuning to retail for $440 including installation.

In addition, there are home construction kits containing all parts of a television set. Designed for amateur radio enthusiasts, they are priced at from $125 to $200, including tubes. Such kits are marketed by Transvision, Inc., of New Rochelle, N. Y., and Electro-Technical Industries of Philadelphia.

Owners of stores, restaurants and bars can purchase projection-type sets for about $2000. These feature built-in loudspeakers and a screen 19 by 25 inches. They are being produced at the rate of 300 or 400 a month, and are extremely popular in big-town financial districts.

Coming up quickly, industry sources claim, are more efficient sets at prices at least 10 percent under current rates. All will have improvements; many will feature screens about the size of a tabloid newspaper page.

Television stations are limited in range to from 20 to 50 miles, though it is possible for mountain-top antennas to signal 100 miles. So, to reach the largest possible audience, stations are being built almost exclusively in metropolitan areas.

Twelve stations broadcast regularly now. Three of them are in New York City, two each in Washington, D. C., and Los Angeles, one each in Detroit, St. Louis, Chicago, Philadelphia and Schenectady. Construction permits for another 64 have been issued by the FCC. Five or six of these will be in operation by the end of this year; another 10 will go on the air next year.

An East Coast television network, tying in stations in New York, Philadelphia and Washington, is already in operation. But a coast-to-coast network is not likely for another three years.

The heavy cost of special equipment has tended to hold down the number of stations. It costs an average of at least $250,000 to establish a television station as compared to $80,000 for an AM station, and $40,000 or less for an FM station.

The average station now programs about 20 hours of entertainment and news

a week. The emphasis in programming is on sports, with as much as 85 percent of broadcast time devoted to baseball, football, boxing, tennis and racing.

Documentary films, news-reels, western serials, quiz shows and fashion reviews round out the typical schedule. Occasionally the audience sees the rodeo, the circus or Congress.

The expense of studio programs which require elaborate sets, first-rate costuming and high-priced talent is so exorbitant that few sponsors have been attracted. The result is that after a brief attempt to match Hollywood entertainment techniques, television broadcasters now put few studio productions on the air.

So television programs are still limited in variety. Presentation also suffers from an abundance of ham acting. Commercials, especially, are even more repulsive than those on ordinary radio. The listener not only hears slush, but he sees it, too.

Television reception is not always good. It can be marred by intervening tall buildings which often reflect television waves and cast ghost images on the screen. Installation of special antennas is sometimes necessary to reduce them. But once a receiver is clearly tuned it will give clear images day and night; static does not affect them.

It is true, too, that the individual must adjust his distance from the screen according to the quality of his eyesight. The picture is made up of a determined number of lines, formed by the motion of light across the screen. The larger the screen, the greater the space between these lines and the hazier the image at close quarters.

Despite all these drawbacks, some 60 advertisers are sponsoring television shows. They foot heavy bills to get experience in television methods and franchises on the best broadcasting time—all in preparation for the inevitable day when television finally fulfills its early and greatly publicized promise.

Even so, CBS says it is losing $500,000 a year in operating its New York television outlet. And last year the Allen B. Du Mont Laboratories showed a net loss of nearly 1½ million dollars on its experimental station in Washington and its television equipment plant. All television stations are operating in the red to some extent.

These costs plus the uncertainties of television's future prior to an FCC ruling in March caused the withdrawal last year of 93 applications for stations. But the ruling broke up a three-year fight within the industry that could have postponed indefinitely the development of television.

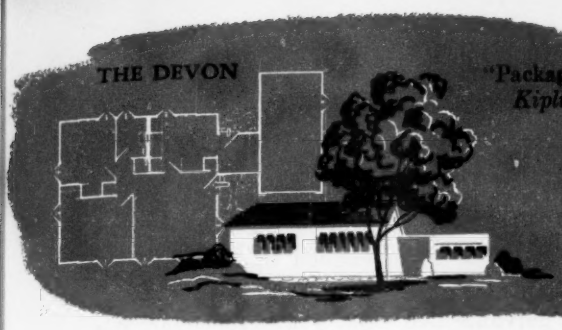
The FCC ruled that black and white television pictures were to have the right of way on the airwaves until color television had proved itself. Sets in use and existing station facilities would have been rendered obsolete had color pictures been permitted. Retooling and redesigning would have cost the industry millions in money and four or five years in time.

After the ruling, broadcasters who had been standing pat began to push their plans. All of the following cities will have television stations within two or three years: San Francisco, Portland (Oregon), Seattle, Albuquerque, Salt Lake City, Dallas, Ft. Worth, Minneapolis, St. Paul, Milwaukee, Cincinnati, Cleveland, Columbus, Dayton, Toledo, Boston, Buffalo, Providence, Newark, Louisville, Richmond, Baltimore, New Orleans and Miami.

These stations will be linked as fast as possible into regional networks by systems of relay towers, special cables and possibly airborne relay stations.

And as receiving sets sell, advertisers will be brought in, programs will be developed, stations will be built. At least, this is the hope of the television people, and it seems to be working out that way.

Next month this magazine will present a similar story on FM, or frequency modulation, another of the most recent major developments in radio. It will tell you what FM is all about, and what the consumer may expect from it.



"Packaged Housing Up to Now," in the March issue of *Kiplinger Magazine*, reported that the factory-built home is a reality at last. Today operations are still small and public acceptance still a question mark. But industrialized-house manufacturers have continued to push ahead. This article tells the story of one of them, his hopes and problems.

"BILL" HARMAN DELIVERS HIS FACTORY HOUSE

A LEADING producer of industrialized houses is William H. Harman, a former locomotive manufacturer. Borrowing from the heavy transportation field an all-steel structural system never before used in housing, Harman has developed a home which is put together strongly, lightly, and ingeniously. His use of simple engineering principles has cut conventional building costs materially.

At his plant in Wilmington, Del., Harman hopes to turn out about 7500 homes this year. But he hedges this hope with a lot of caution. One drawback to full-speed production is the difficulty of gauging public acceptance of steel houses.

In late July, with a supply of the homes backed up in his factory, Harman shut down temporarily to await public reaction to the homes that were being set up in Miami, Asheville, Philadelphia, Washington and Milwaukee. A natural worrier, he was ready to foresee the worst. But his pessimism was shared neither by the Rockefeller interests, which originally helped finance him after an extensive survey, nor by government housing officials.

The National Housing Agency has approved the house. Moreover, Harman holds one of the first guaranteed market contracts offered by the Housing Expediter to entice builders into immediate production. By its terms, if Harman is unable to sell all his homes, the government will buy the leftovers until the end of 1947.

Harman and his chief engineer, Max Essl, first got their housing idea several years ago when they were looking for a way to take the vibration out of locomotive cabs. Harman was then vice president of the Baldwin Locomotive Works, and Essl was chief engineer of Baldwin's Diesel Engine Division. Although locomotive cabs were built of heavy steel, they vibrated like a rivet gun.

Co-workers Harman and Essl took a look at an all-steel "monocoque" (single shell) structural system which the Lindsay Corp. of Chicago had developed for specialized truck bodies. By stretching thin sheets of steel taut over a light metal frame, Lindsay had produced truck bodies that were light, rigid and tough. When this system worked equally well with locomotive cabs, Harman and Essl were so impressed they wondered about applying it to house construction.

They didn't do anything with their idea until 1943, by which time Harman had become president of William Sellers & Co., manufacturers of machine tools. What swung them into action was Essl's purchase of a conventional home for his own use. The slow, non-integrated way the house had been put together outraged his engineer's mind. Thus the William H. Harman Corp. was born.

When the Wyatt veterans' emergency housing program was announced in 1946 —offering priorities, allocations, price con-

trol and a guaranteed market—Harman dropped his plans for a modest beginning and prepared for big-scale operations. Despite the subsequent collapse of the Wyatt program and the quick death of several rival companies, Harman managed to collect the million dollars worth of materials he needed. The first Harman houses came off the assembly line last May and by June they were being turned out at a 50-a-week clip.

Steel houses have cost too much partly because they weighed too much. But the "monocoque" system, to which Harman and Essl have acquired an exclusive contract, cuts the weight, reduces steel costs and produces a house roughly as rugged as a truck. A Harman home weighs only about 22,000 pounds as compared with 92,000 pounds for a conventional home of comparable size.

Every sheet and stud in the house—its skin and bones—is pre-formed, pre-cut and marked for its proper place. The plumbing is assembled in a "nest," ready to be connected with the water mains and fixtures. In the same way, all the wiring goes into a "harness," each wire cut to the right length, and ready for connection.

Truck trailers are pulled through the factory and the pieces loaded on in exact order. In this knocked-down state an entire house, complete with rods for the closets, fits on one 24-foot trailer.

Putting the house together at the site is something like assembling an adult "Erector" set, so simple that the work requires no skilled craftsmen. Under Harman's plan, labor is furnished by the local contractors to whom the houses are sold. The contractors also must supply the lot, the foundation, the landscaping and all other finishing touches.

Site labor cost is higher than for some other industrialized houses where more of the assembling is done in the factory, but Harman tries to offset this disadvantage by a lower factory price. His two and three-bedroom homes sell at the plant for $3542 to $4039. Original plans called for a final sales price of $6000 to $7500. But cost increases have jumped the range to $7500 and $9000 exclusive of the lot. Even so, Harman expects to undersell a comparable conventional house by $2000.

Corrosion, another technical problem which has long plagued builders of steel houses, is controlled at the outset by using a galvannealed steel. Further, the house is sprayed with a thick oil paint, with sand, and with another heavy coat of paint. The coating not only preserves the metal, but gives the house a stucco-like finish that appeals to many home buyers.

To prevent damaging condensation of moisture on the inner side of the metal, Harman leaves an air space between outer and interior walls. Louvers in the roof and ventilator slots at the base of the house set up a chimneylike draft of air through the opening, and keep the walls dry.

This system of ventilation also tends to cool the house in summer. The air space prevents heat from the outer walls from "soaking" the blanket-type insulation affixed to the plasterboard interior walls.

FROM a structural standpoint, the Harman house is "engineered." It uses metal as metal and not as though it were wood. While not revolutionary in design as is the circular "Dymaxion" house, the Harman is "modern" in that it has clean-cut lines and a simple mass. Yet the traditional pitched roof gives it a conventional look.

In large developments the appearance of monotony can be avoided by setting the house at different angles and by varying garage placements. To make certain his homes are advantageously set, Harman requires layouts to be approved by him.

A mild, modest man of 66, Harman doesn't rave about his homes and readily admits they may not be "the" answer. This modesty is admirable, but it may be slightly excessive. For Harman's homes have enough good engineering, economy and attractiveness to suggest that they may be a solid part of the answer.

Sir: Possibly the first step toward "One World" would be "One U. S." Within an hour after I read in your July issue that "one world should mean the end of tariffs, passports, customs inspectors and other bureaucratic by-products of national jealousies" I entered California. My baggage was opened and I was subjected to an inspection never equalled in Europe. The excuse was insect control. The real reason is that Arizona, Texas and Florida raise better grapefruit than does California—and I live in California. Let's get free trade between states before Earl Warren is elected President to administer "One World." Possibly these state embargoes would provide material for an interesting article.

Hal Martin, Pasadena

¶ *Thanks to Mr. Martin our October issue will carry such an article, tentatively entitled "Walls Between the States."*

Sir: I am in receipt of my first issue and your letter asking for suggestions. I will trouble you with few such but I would like to emphasize that this government is being administered with too much dishonesty, too many unfilled promises, causing not only too much dissatisfaction, but lack of confidence.

E. P. Gallup, Palmer Lake, Colo.

Sir: Your magazine recently printed an article, "Give Us Better Bread" (May issue) which gave the impression that people were eating less commercial bread because of its lack of taste. I quite frankly am not one of those who believe people are eating less bread than they did, say 25 or 30 years ago. The baking industry is woefully lacking in figures about itself and we here at *Bakers' Helper* have been trying editorially to get the industry to take part in the next Census of Manufactures to find out a lot of things that the industry should know. Too many statements are made that people are eating less bread, without verifying the facts. I am afraid that too many of these statements are based on flour disappearance and it is my honest conviction that to get at the consumption of bread we cannot use the time-worn formula of the disappearance of flour. Bread is not made the way it was 25 years ago. The same quantity of flour which was used then will produce much more bread today because of quantities of other materials which are added to the dough.

Harold E. Snyder, Editor
Bakers' Helper, *Chicago*

Sir: I am somewhat surprised to read on page 46 of your July issue ("The Postal Service—How to Use It to Advantage") the recommendation that your readers buy government stamped envelopes. Is it really your policy to promote government competition against private industry? If economy were the only important item in the purchase and use of envelopes there might be some merit to the suggestion. However, some business organizations like to judge their envelope purchases by the return they get from using the envelopes.

J. A. Chadbourne, President
Old Colony Envelope Co.
Westfield, Mass.

¶ *The Post Office Department buys its stamped envelopes from private stationers under competitive bidding and makes virtually no profit on them.*

Sir: Your July issue contains a note on page 46 ("The Postal Service—How to Use It to Advantage") relative to the simplicity and ease with which U. S. Postal Notes may be used. There is, however, one serious objection to these notes, which I personally find shocking. The Federal Reserve Bank of New York, in its Circular #2354, provides for a 15-cent collection fee when such notes are not drawn on a Federal Reserve city, etc.

C. R. Vose
General Insurance, Brooklyn

¶ *Postal notes are payable in full at any post office in the United States. Anyone encountering a collection fee should write to the Third Assistant Postmaster General, Washington 25, D. C.*

Sir: Monopolistic practices to the detriment of the public, described in "Notes of the Times" (August issue) are a threat to our democracy. There is nothing wrong with monopoly per se but it becomes anti-social when the public is adversely affected, by excessive profits derived from capital, or labor

costs, or where monopoly freezes out competition and then increases prices to excess profits. Economists can determine a "fair" profit for capital based upon the accepted average profit for comparable enterprise. A "fair" wage for labor similarly can be determined by comparison with other labor wages.

When profits are unduly high, capital and labor should be given an opportunity to readjust their sights. If they fail to act, government controls should be invoked. The government can either enforce price controls or purchase the industry at a fair price if capital is not amenable. If labor costs exceed the norm, wage controls are the only alternative.

J. A. Bisno
Real Estate Counsellor
Los Angeles

Sir: Unless America does something to bring about cooperation between employer and employe I hate to think of what will happen in this country. The unions are practically running the government at the present time and unless something is done, other than making laws which will not be kept, especially by the unions, then perhaps we won't have to wait for a war with Russia—maybe we will have one at home.

D. E. Knowlton
Knowlton Warehouse Co., Buffalo

Sir: Your article "The Pollsters—Right and Wrong" (July issue), though excellent in many respects, unfortunately ran right through one of those warning signals it points out. The writer would be willing to bet that the two agencies referred to as competing public opinion polls on the question of "socialized medicine" would hardly agree that the questions mentioned "were differently phrased but were identical in intent." Actually there is not the slightest similarity. No reasonable researcher would expect any real correlation between a question of "would you like?" and one of "would you pay?"

Richard W. Sidenberg
Agricultural Advertising
& Research, Inc., Ithaca

Sir: In the first place, I would like to tell you how much I enjoy reading your *Kiplinger Magazine*. I note in it quite a number of articles of interest to me, as well as to other people. Incidentally, in a recent issue (June) someone wrote up the prospects in the washing machine business. We happen to have one of the automatic washing machines made by the Bendix people, and after reading the article Mrs. Laurie felt that several statements made in there were incorrect. I am giving these to you for what they are worth. In the first place, (1) the price of the machine includes installation and no extra charge was made, as was indicated in the article. In the second place, she felt that (2) it really takes less soap to do the job, and that the actual completed washing is better than she was ever able to do with one of the other type machines.

Alex Laurie
Professor of Floriculture
Columbus, Ohio

Sir: The article "Morals of Selling Liquor" (July issue) certainly is not an unbiased one and undoubtedly you have had some outside pressure brought to bear, perhaps from the W.C.T.U or other dry organizations. Personally, I am a teetotaler but I know your article is as far from the truth concerning the liquor industry as anything could be.

J. A. Smith, President
J. A. Smith, Inc.
Importers-Wholesalers, Tampa

¶ *We are not subject to pressure of any kind, and do not favor prohibition. We advocated greater restraint by the liquor industry itself to forestall imposition of restrictions from outside the industry.*

Sir: Your story, "Morals of Selling Liquor" in the July issue of *Kiplinger Magazine*, is a distortion of the alcoholic beverage industry in business and in society. The criticism of prices and profits implies that they are controlled by the alcoholic beverage makers and distributors. In a free competitive enterprise system, prices and profits are governed by the people's income and living costs.

Your most damaging and disheartening cynicism is in your discussion of the results of intemperate use of alcoholic beverages. The story grudgingly admits that individual distillers have given half a million dollars to research into alcoholism, yet you say they "publicly disclaim any responsibility for alcoholism."

The industry accepts this challenge. Its Licensed Beverage Industries, a nationwide public relations organization for the alcoholic beverage industry, seeks to improve all social practices growing out of the use of its product on a broad front, which includes law enforcement and highway safety. It supports several research efforts, among them a basic study of problem drinking by Dr. William Cherin, formerly of the University of California. When one method of dealing with problem drinking, tried and proven by experiments, is agreed upon, the alcoholic beverage industry, in my opinion, will support it wholeheartedly.

Frank Kane, Frank Kane Corp.
New York

INCENTIVE MAKES THE MARE GO

IF you are an employer, the chances are 10 to 1 that not many years ago you were on the other end of the deal—as an employe. And the chances are that you work harder now than you did then. At least, most men at the top of business organizations, both big and little, feel that they put in more hours and more intensive effort than the majority of their employes, or than they themselves did when they were subordinates. You hear owners who run their own businesses say they are the hardest-working members of the entire organization, and they are probably right.

The question is, Why? It does not take much perspicacity to see that the answer has something to do with incentive. In the case of the owner or the top executive, there is usually a close relationship between the effort and the return. The return may be more money, or it may be growth of the business, or it may be something less tangible, such as pride or reputation in the community. At any rate, there's always incentive.

This makes for better effort, and no one knows it better than the head man, for he can see it operate in himself.

What he sometimes does not see is that the same thing applies to the employes all along the line. Every employe wants to get ahead, just as the boss man does. And every employe takes pride in his work, or at least is a candidate for the taking of pride.

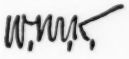
BUT something is missing, and often it is incentive—the lure, the internal urge, the confidence that there will be reward. Without this, the worker does a certain amount of work, gives a certain amount of effort, and that is that.

There are employers who think that this is the way things *must* be. There are other employers who suspect (and some have proved) that work improves, and production picks up, when more incentives are injected into the system of operation. It may be in the form of regular pay, which comes first. It may be in bonuses and other forms of profit sharing. It may be in advancement, which means pay and also recognition—a feeder of pride.

Can the employer afford to provide incentives? Some are finding they can't afford *not* to. They discover, by experience, that the better work that comes with more incentives actually reduces costs. (Examples are presented from time to time in this magazine.)

The work force of this country is none too big for the job that must be done, either for the outside world or for our own people. The quantity of workers is limited, but there is no limit on the *quality*.

Every boss knows that his machinery will run better and produce more if it is given constant attention, and plenty of oiling. Quite as profitable is a little more oil on the human element.



COMING NEXT MONTH

Kiplinger Magazine

SUPREME COURT
AND YOUR BUSINESS

Some basic business decisions hinge on the coming session: labor law, competition, real estate, patents, food and drug, state taxes, auto loans. The Court may look forbidding, but you can't afford to ignore it.

TRUBEY SHARES THE PROFITS

"What we need is more capitalists," says an Ohio manufacturer, and his profit-sharing plan gives every employe an interest in the company's welfare. A tried and proven plan. May be adaptable to your business.

THE STORY OF PACKARD

President Christopher has turned a stiff-necked firm into a live competitor.

CONSUMER CREDIT NOW

Installment buying is headed toward an all-time record high. What will it do to your customers? What happens when business falls off?

WALLS BETWEEN THE STATES

We have tariffs and customs inspectors here at home, and it's tough on the businesses that have to cross state lines. What can be done about our own "Balkan problem"?

AND MANY OTHERS